CONSPIRACY TO ARM APARTHEID CONTINUES

FRG ~ SA COLLABORATION

DOCUMENTATION

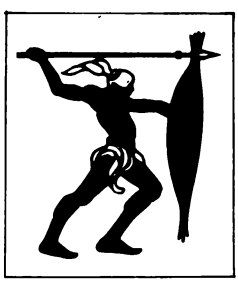
of the

african national congress south africa

CONTENTS

Documentation of the ANC, South Africa

AFRICAN NATIONAL CONGRESS, P.O.B. 1791, LUSAKA, ZAMBIA



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PRODUCTION ON BEHALF OF THE ANC OF SOUTH AFRICA:

pdw progress dritte welt verlag·verleih·agentur
53 bonn-1, buschstr. 20; tel. 21 34 64 postfach 1528

Conspiracy to Arm Apartheid Continues

South Africa has since the 1960s expanded the local manufacture of munitions and military equipment in anticipation of an arms embargo. In these efforts it has received and continues to receive assistance from its long standing allies and collaborators in the form of investment, joint manufacture and the granting of licences and patents. The South African arms industry also receives considerable technological assistance in research and manufacture.

South Africa is still regarded as a valuable ally and partner with whom are shared common economic, political and strategic interests. Furthermore as an acknowledged international outlaw and criminal, South Africa offers a convenient centre in which to develop weapons and technology that might elsewhere be liable to international control and supervision. Thus while occasional ritual denunciations of apartheid are made, the flow of arms technology and strategic information continues unabated.

The evidence of the transfer of weapons technology to the apartheid regime is published as an illustration of the methods used, and to reveal the degree of complicity of the government of the Federal Republic of Germany, which so frequently tries to deny its involvement. It is also the Federal Republic which through its state financed institutions has provided South Africa with the means to threaten Africa and the world with a nuclear holocaust.

The governments, companies and institutes that engage in this diabolic traffic have chosen to ally themselves with our oppressors, and to actively participate in hindering the struggle for freedom of the South African people. Their actions proclaim where they stand and have not gone unnoticed by the people of South Africa.

The extent of military collaboration that is revealed illustrates the inadequacy of existing resolutions of the United Nations in the face of the determined attempts by South Africa's allies to continue to arm apartheid. Mere denunciation and condemnation can no longer be the only response. Determined and united action by non governmental organisations, churches, trade unions, students and progressive citizens must disengage their institutions and governments from this conspiracy.

The international community can and must now take immediate action to introduce mandatory sanctions against South Africa, as the only effective means of preventing continued military assistance reaching the Vorster regime.

FRG-South Africa Collaboration

"There is no such thing as a military cooperation between the Federal Republic of Germany and South Africa."
Baron Rüdiger von Wechmar, FRG Ambassador to UN, December 1976.

The Federal Republic of Germany has chosen to place itself in a special category in its alliance with South Africa. While the international community endeavours to isolate the apartheid regime, the FRG has increased its links with Pretoria in every sphere of activity. The political, economic and military connections between apartheid South Africa and the Federal Republic have not resulted from long standing historial links, nor from geographical proximity. They are the product of conscious deliberate decisions by successive governments in Bonn and represent a defiant and public acknowledgement of support for the oppressive system in South Africa.
Within the last decade the FRG has leapfrogged up the table of South Africa's economic collaborators and now vies with Britain for first place. Between 3-400 German companies have subsidiaries in South Africa, and more than 6.000 in some way associated with South Africa. West German investments and credits for the apartheid regime have increased dramatically. These various connections are not purely private commercial dealings, but are actively encouraged and even underwritten by the Federal Government. So anxious is the Social Democratic and Liberal Government in Bonn to prop up the apartheid system, that in 1976 it increased by nearly 300 %, the guarantees,covering South African imports from West Germany. In 1977 this form of assistance has continued to increase.
While professing to maintain an arms embargo, the FRG has been actively and deliberately engaged in stengthening the apartheid military machine. Photographs of West German manufactured or designed equipment in use by the South African army, navy and air force appear openly in South African publications. The FRG has provided equipment and made the NATO codification system available to South African naval and other military installations. It has provided nuclear technology to South Africa and is ready to provide equipment for the uranium enrichment plant. Missile carrying South African patrol boats operate on German built engines. West German companies have supplied equipment for the St. Lucia Missile range on the Indian Ocean.

The Bundeswehr cooperates with the apartheid military forces — welcomes officers to the Federal Republic and facilitates their work. Access is provided for installations

of the Ministry of Defence and security clearance freely given. Officials of the Armaments Board, military experts and civilian scientists engaged in work of military significance are given every assistance – their queries are answered and their missions facilitated.

State financed research institutes, universities, companies engaged in weapons manufacture and military contracts in the Federal Republic follow suit, and freely provide information and assistance to the weapons makers of the apartheid regime.

Military Cooperation

The relationship between the Federal Republic of Germany and South Africa goes beyond that required by armament sales. It is not a commercial one of vendor and purchaser, but rather of ally and partner. The FRG sees South Africa's military and strategic interests as coinciding with its own. From this understanding flows the close relationship between the Bundeswehr and the "South African Defence Forces" which is manifested in the frequent exchange of visits by members of the military machine, and was publicly proclaimed by the presence of the Federal Republic's Secretary of State in the Ministry of Defence, Fingerhut, and a ranking General, Schneider, at the inauguration of the new South African Embassy building in Bonn in September 1975. Most importantly there is an exchange of information on strategic and technical matters. Access is freely provided for South African military personnel to visit German military establishments and private firms engaged in military and defence projects.

We provide below some examples of the military cooperation between the FRG and South Africa, stressing that these examples do not comprise the totality of the relationship, but illustrate an ongoing and continuous process of collaboration.

Visits of Military Personnel

Members of the German armed forces visit South Africa and South African military personnel are welcomed in the FRG. German Generals Rall, Trettner, Kielmannsegg, de Maiziere and Gruner have visited South Africa. General R.C. Hiemstra, while Kommandant-Generaal, the Chief of the South African Air Force, Lt. Gen. J.P. Vester, Lt. Gen. H.P. Laubscheer and Brigadier A.E. Erasmus SM are among senior apartheid officers who have visited the FRG. Maj. Gen. H. de V. du Toit of the South African Military Intelligence makes regular visits to the Federal Republic for the purposes of liason and discussions with West German counterparts.

The visits between the Federal Republic and South Africa take place with the full knowledge and approval of the German government. Initially, it was denied that the West German representative on

DOCUMENT 1

Flottillenadmiral Rolf Steinhaus
im
Bundesministerium der Verteidigung

53 Bonn 1, den 30. November 1972
Postfach 161
Fernsprecher 2 01 61
Fernschreiber 0886 575, 0886 576

An die
Botschaft der Republik Südafrika
z. Hd. Herrn Brigadegeneral
D. J. Hamman

5 K ö l n
Heumarkt 1

Lieber General Hamman!

Anliegend sende ich Ihnen - wie heute telefonisch besprochen - die mir vorliegenden Unterlagen zur Frage der "Ausdehnung des NATO-Gebietes im Südatlantik". Wie ich Ihnen sagte, liegt die endgültige Formulierung der kontrovers diskutierten Empfehlung noch nicht vor, sie wurde jedoch angenommen. Der endgültige Text soll in Brüssel ausgegeben werden.

Mit freundlichen Grüßen

Translation

Fleet Admiral Rolf Steinhaus
in the Federal Ministry of Defence

53 Bonn, Nov. 30th, 1972
P.O.B. 161
Tel.: 20101
Tlx.: 0 886 575, 0 886 576

Brigadier General D.J. Hamman
Embassy of the Republic of South Africa

5 Köln
Heumarkt 1

Dear General Hamman !
As enclosure I'm sending to you – as we have arranged today on the phone – the documents in hand concerning the question of the "expansion of NATO in the South Atlantic". As I had told you, the final formulation of the controversially discussed recommendation has not been finished yet, but, it was adopted, however. The final text will be issued at Brussels.

Best regards
sd. R. Steinhaus

the military committee of NATO, General Rall had visited South Africa under a pseudonym and inspected the nuclear installations. When documentary evidence of the clandestine visit was made public, General Rall resigned his NATO post. However, German Defence Minister Georg Leber continues to deny any previous knowledge of the visit. By implication it is the German contention that Vorster's Ambassador Sole was lying to Pretoria when on four different occasions he claimed that Minister Leber was aware of and approved of the Rall visit, even going so far as to claim that he had spoken to Leber: "I was able to arrange for the issue of a visiting permit (for Rall) on an informal basis by Defence Minister Georg Leber, with whom I likewise discussed the matter." (1) No government can find acceptable as an Ambassador a man who so gravely abuses the truth, reports non-existent conversations and meetings, and makes false claims about members of the government

to which he is accredited. Yet a further 18 months Ambassador Sole remained the representative of the apartheid regime in Bonn. The FRG did not ask for the recall of the allegedly "lying" Ambassador, nor even suggested it. Actions speak louder than words, and no doubt Sole's attempts to cover up by claiming to have misunderstood Leber only served to enhance his status in Bonn. His help in saving a friend would account for the added influence he was able to command at the Federal Foreign Ministry.

The various visits by apartheid officers to the Federal Republic are not courtesy calls. Many are concerned with strategic discussions, others with specific military projects in which the FRG governments and companies are collaborating. Other visits are concerned with providing training either on the German equipment to be procured or for purposes of attending courses.

Exchange of Strategic Information

There is a regular exchange of confidential and strategic information between the FRG and the Vorster regime. Discussions are held at various levels in the course of visits of senior officers and Ministers, and memoranda and strategic evaluations exchanged. South Africa is also given access to the deliberations of NATO through the German Bundeswehr.

The extension of the NATO alliance into the South Atlantic is frequently denied by NATO member governments. However, reports and recommendations by NATO committees considering the "expansion of the NATO area in the South Atlantic" were sent to South Africa by Admiral Rolf Steinhaus, of the Federal Republic's Defence Ministry planning staff. (2) Other NATO documents including secret reports of various committees have also reached South Africa in a similar way.

Assistance to Vorster's Forces

Apart from exchange of information on strategic matters, the Federal Republic provides regular assistance to the apartheid army, navy and air force. Officers and other personnel are welcomed on study visits and to attend regular courses. As the documents reproduced on p 9 show a routine procedure for such visits has been established.

The Government of the Federal Republic has on a number of occasions maintained that the installations by West German companies of the radar surveillance system "Advocaat" for which the Bundeswehr provided the NATO codification, was not a military project. This is done in the face of the facts that are known to the Federal authorities.

* The surveillance of ships in the South Atlantic and Indian Ocean is undertaken for military purposes.
* The system has been installed in the then headquarters of the apartheid navy at Silvermine.
* "Advocaat" is controlled not by civilian personnel but by naval officers .
* German firms trained members of the South African Navy in operating the equipment, and a naval Commander Jacobus Brink came to the Federal Republic to take charge of the project.

DOCUMENT 2

Telefoon : 23 68 71
Telephone

Bylyn : 14
Extension

Militêre, Lug & Vlootattaché,
Military, Air & Naval Attaché,

Suid-Afrikaanse Ambassade,
South African Embassy,

5 KEULEN 1,
5 COLOGNE 1,

Heumarkt 1.
1 Heumarkt.

7 November
November, 1969.

INSTRUKSIES EN RIGLYNE VIR NAKOMING DEUR LEDE VAN DIE SAW
INSTRUCTIONS AND GUIDELINES FOR COMPLIANCE BY MEMBERS OF

WAT DIENSBESOEKE/KURSUSSE VIR 6 MAANDE EN LANGER IN DUITS-
THE SADF VISITING GERMANY TO ATTEND COURSES OR ON OTHER

LAND MEEMAAK
DUTY VISITS

1. Instruksies en riglyne in bovermelde verband is saamgevat in Aanhangsel A en word hiermee aan u uitgereik ter insae en nakoming.
Attached as Appendix A are instructions and guidelines in the above connection for your perusal and compliance.

...

VISITS BY SADF PERSONNEL

Arrangements to be made iro visits by members of the SADF to German military and civilian establishments are as follows:-

a. Visits to military installations and establishments

i. Write a letter in triplicate (in German) to the Bundesministerium der Verteidigung to reach them at least eight weeks prior to the commencement of the visit. Such letter will include particulars iro the following:-

...

ATTENDANCE OF COURSES IN GERMANY

1. Arrangements to be made iro members who attend courses at military and/or civilian establishments in Germany, are as follows:-

a. Military Courses ,

i. Write a letter in German, in triplicate, at least eight weeks prior to the commencement of the course to the Bundesministerium der Verteidigung,
S 11 8,
53 B O N N 1,
Postfach 161.

...

iv. At least three weeks prior to the arrival of SADF students, the Bundesministerium der Verteidigung must be provided with the necessary clearance forms in triplicate.

* Other naval and Armaments Board officials came to the Federal Republic in connection with the project. (3)

Classified institutions, research facilities and private companies are all thrown open to military personnel, to officals of the South African Armaments Board and others engaged on research into aspects of weapons technology. On every such occasion the Federal Government is involved, for applications for access to many of these institutions have to be made via the Bundeswehr and also security clearance obtained. The identity of interests covered by security is emphasied by the acceptance of South African security certificates and gradings.

The Bonn Defence Ministry has permitted South African officers to its computer centre in Bonn (4), and facilitated visits by army officers to firms such as Siemens and Messerschmitt-Bölkow-Blohm who are regularly engaged on military contracts.

The frequency of the visits and cooperation is illustrated by looking at just one month — March 1974, when the following are among those known to have been in the FRG on special missions, in addition to those engaged on project Advocaat, and undergoing training: Brig. J.J. du P. Scholtz, Director of Fortifications and Military Works; Maj. C.J. Smit who was part of a team with officials of the Armaments Board; Commander L.R.A. Caroll and Lt. Commander A.J. Bateman of the South African Navy and Captain E.F. Laubscher of the Air Force.

Many, ostensibly scientific visits are promoted and initiated through the South African Council for Scientific and Industrial Research, CSIR, whose constituent organisations include the National Institute for Defence Research (NIDR), National Mechanical Engineering Institute (NMERI), and the National Physical Research Laboratory (NPRL). All these institutes conduct research of military significance and for military purposes. The visits to Germany are arranged through the scientific Counsellors at the Embassy, though frequently it is done in "close consultation with the military attache". (5) Even when such ostensibly scientific research visits are directly sponsored by various sectors of the apartheid military forces, and concerned with specific military projects, the Federal Republic and the Bundeswehr provide assistance.

Among those who have frequently visited the Federal Republic and been given free access to various classified institutions and companies involved in weapons production and other military work are:

M.E. Beyers, of the Aeronautics Research Unit of the National Mechanical Engineering Research Institute. He has been involved in research covering free flight testing in wind tunnels and ballistic ranges, and ballistic range instrumentation.

Dr. H.G. Denkhaus, Director, National Mechanical Engineering Research Institute.

Dr. A.G. Engelter, a citizen of the Federal Republic, who has operated as Senior Research Officer of the Institute of Mathematical Sciences. In that guise he has undertaken missions to the Federal Republic on behalf of the South

DOCUMENT 3

15/5

A/VCS/6/7

IC/A/12/3/3

2-9141 x 319

Hoof van die SAW
Privaatsak X414
Pretoria
3 Mei 1974

Sekretaris van Buitelandse Sake

BESOEK AAN DUITSLAND

1. Ministeriële goedkeuring is verkry vir kdr H.J. Jooste van die SA Vloot en lede van die Krygstuigraad op 'n besoek na Duitsland oor die periode 10 tot 25 Mei te vereenig.

2. Die besoek gaan oor sekere handboeke van uitrusting wat

handel oor sintesebeskrywing en tussenfasetoerusting vir Projek Advokaat.

HOOF VAN DIE SAW : ADMIRAAL

Hoof van Staf - U sein SSO TPLS/637 dd 1 Mei '74.

Hoof van die Vloot - U sein A1/A985 dd 1 Mei '74.

Kontroleur, SAW

Hoof van Staf Personeel

Hoof van Staf Inligting

Militêre Lug en Vlootattaché, Roulen

Ter informasie.

DIREKTEUR-GENERAAL MILITÊRE INLIGTING : GEN-MAJ

Chief of the SADF
Private Bag X414
Pretoria
3 May 1974

Secretary of Foreign Affairs

Visit to Germany

1. Ministerial approval has been granted for Commander H.J. Jooste of the South African Navy to visit Germany with members of the Armaments Board for the period 10-25 May.
2. The visit is in connection with certain manuals (instructions) dealing with systems description and intermediate stage preparations for Project Advocaat.

Chief of the SADF: Admiral

African Navy and Armaments Board. In the guise of an official of NIEE he has made further visits including some on behalf of the Atomic Energy Board. (6)
Dr. T.J. Hugo, Director of the National Institute of Defence Research.
H.N. Jungwirth, of the Nuclear Science Group of the National Physical Research Laboratory. On some of his visits to the FRG he indicated an interest in design of cyclotron magnets, magnet materials and magnetic field measurements.
Prof. W.L. Rautenbach, who visited the FRG as Project Leader of Board of Control, Feasibility Study for National Open Sector Cyclotron.
I. Rodger of the National Institute of Defence Research who has among others visited MBB.
N.J. Smit of the National Institute of Defence Research.
C.G. Van Niekerk Head of the Aeronautics Research Unit.
J.D.N. van Wyk, Director National Electrical Engineering Research Institute, who has undertaken foreign missions on behalf of the Armaments Board.
Dr. L.L. van Zyl, Chief Research Officer, National Institute of Defence Research.

The Federal authorities also assist South Africa liberally by providing technical information on demand. We publish a letter from the German Defence Ministry in answer to South African enquiries of how to cope with problems of static in helicopters. (7) The information is offered quite freely, and a meeting with a Defence Ministry expert is suggested if further advice is required. In view of the parties to this correspondence it is impossible to deny the military character and use of the information supplied.
Government financed air and space research centres such as Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt (DFVLR) at Göttingen and the Institut für Angewandte Gasdynamik at Porz-Wahn have opened their doors to officials of the South African Aeronautics Research Unit. Amongst those assisted was M.E. Beyers who explained his special interest for the visit as including 1. models and launching equipment, 2. optical data acquisition system, 3. data reduction techniques. (8)

Some other West German research institutes that have contributed to apartheid's military equipment:
Astronomisches Institut der Universität Tübingen;
Gesellschaft für Schwerionenforschung mbH, Darmstadt;
Hahn-Meitner Institut für Kernforschung, Bereich Kern- und Strahlenphysik, Berlin;
Institut für Angewandte Geodäsie;
Institut für Metallkunde der Technischen Universität Berlin;
Institut für Nuklearmedizin am Deutschen Krebsforschungszentrum, Heidelberg;
Institut für Physik und Chemie der Polymeren der Universität Marburg;
Institut für Technische Elektronik, Technische Universität, München;
Kernforschungszentrum, Karlsruhe;
Kernforschungsanlage, Jülich;
Laboratorium für Betriebsfestigkeit;
Max-Planck-Institut für Kernphysik, Heidelberg;
Max-Planck-Institut für Metallfor-

schung, Institut für Physik, Stuttgart;
Radiologische Universitätsklinik Strahlentherapie-Abteilung, Hamburg.
Dr. A.G. Engelter came to Europe on a top secret visit on behalf of the South African Navy concerned mainly with acquiring technical information on underwater weapons particularly mines and counter measures; and monitoring instrumentation for magnetic and low and audio frequency acoustic signals. He had discussions with Siemens subsidiary Vakuumschmelze GmbH in Hanau and Institute für Meereskunde Kiel. (9)
With government financed institutes and the Federal Defence Ministry and Bundeswehr being so cooperative in providing information to South Africa's arms industry, it is not surprising that German firms follow suit. The head of the Aeronautics Research Unit, many of whose researchers have visited Messerschmitt-Bölkow-Blohm included the following in his report of one overseas trip:

"In an endeavour to obtain information which could help solve problems encountered by the ARU in the manufacture of autogyro-rotor blades of glass reinforced plastic, the author visited Messerschmitt-Bölkow-Blohm GmbH in Munich, Germany. This firm produces such blades for helicopters.
"The author was permitted to witness the actual production process under way, and almost all of his questions were answered with complete lack of reserve. Information on blade aerodynamics and on structural testing was also obtained."

Similarly after a visit the President of the CSIR wrote to Siemens AG:
"I was very impressed with the work of Dr. Stein and his collaborators and my Council feels greatly honoured to be associated with the Siemens Organisation in the joint project being undertaken."
Despite Bonn's defence of firms such as MBB, Siemens and MAN and the denials that they are involved with the South African armaments industry, it is quite clear that these companies are so involved, and have made substantial contribution to South Africa's military strength. They are most frequently visited by scientists from the National Institute of Defence Research and officials of the South African Armaments Board.

Firms in the Federal Republic frequently visited include
Siemens AG — the largest employer in the Federal Republic and possibly the most strategic corporation in the country. It is frequently engaged in military projects. Dr. Hugo, J.D.N. Van Wyk and N.J. Smit are among the weapons researchers who frequently visit Siemens including the research laboratories.
Messerschmitt-Bölkow-Blohm
the largest military and weapons manufacturer in the Federal Republic and one of the largest in Western Europe. 20,05 % of the shares of MBB are held by the State of Hamburg which has an SPD government. A further 25,97 % are owned by the State of Bavaria. The extreme helpfulness of MBB to the Aeronautics Research Unit has already been mentioned. Of-


LABORATORIUM FÜR BETRIEBSFESTIGKEIT
GEMEINNÜTZIGES FORSCHUNGSINSTITUT DER FRAUNHOFER-GESELLSCHAFT
INSTITUTSLEITUNG: PROFESSOR DR.-ING. E. GASSNER · DR.-ING. O. SVENSON
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MASCHINEN- UND STAHLBAU
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An die
Wissenschaftliche Abteilung
der Südafrikanischen Botschaft
z. H. v. Frl. E. Coetzee
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Dr. F. Hoßfeld
An die
Aktiengesellschaft
Der Vorsitzende des Vorstandes
by Dr. A.G. Engelter
RAS
KERNFORSCHUNGSANLAGE JÜLICH
GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG
FACHBEREICH HALBLEITER
KFA
BEARBEITER
Dr. Wolff
517 JÜLICH 1, den
2. September 1974
Mit freundlichen Grüßen
Dipl. Ing. H. Grauer-Carstensen)
UNSER ZEICHEN
B2-E18/Dr.Wo/Kr
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AERODYNAMISCHE VERSUCHSANSTALT GÖTTINGEN
Institut für Strömungsmechanik
Braamfontein
P.O.B. 10 264
gern bereit, Herrn Beyers zu zeigen
VACUUMSCHMELZE GMB
MAX-PLANCK-INSTITUT FÜR METALLFORSCHUNG
INSTITUT FÜR PHYSIK
DIREKTOR: PROFESSOR DR. RER. NAT. ALFRED SEEGER
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Technische Hochschule Karlsruhe,
Reaktorstation, Leopoldshafen,
KARLSRUHE
Federal Republic of Germany
Kernforschungsanlage Jülich
Gesellschaft mit beschränkter Haftung
i.V.
(S.A. Weinhold)
STUDY : MR. P.J. WILMOT
KRUPP
ATLAS-ELEKTRONIK
STEAG Aktiengesellschaft
4300 Essen

AMPTELIKE BESOEKE AFGELE (WEG VAN KÖLN)
DEUR BRIG D.J. HAMMAN, SM
GEDURENDE 1970.

DUITSLAND

7. 2 Junie:

Besoek Firma Platt GMBH in opdrag van KG.

9. 3 September:

Besoek Fried Krupp Atlas Elektronik saam met Kdr Brink op uitnodiging van Dr. Maas en Dr. Wächter, i.s. "Zonar Accustic"

11. 22 September:

Besoek Firma Platt GMBH in Hamburg en voer besprekings re opleiding van AO's. Reis per vliegtuig.

11-12 July: Official visit to Messrs. R. Noske Nachfolger in Hamburg, to discuss NBC Defence system for Project Taurus (See file Q/EQPT/6).

11. 11 - 12 Julie:(Duitsland)

Amptelike besoek aan mnre. R. Noske Nachfolger in Hamburg ivm bespreking van Projek Taurus. (Sien Lêer Q/EQPT/6).

1. 14 - 17 JANUARIE: (DUITSLAND)

Sluit aan by die TAURUS Projekspan en ek besoek af aan die firmas AEG en Noske Nachfolger. Die span was gelei deur Kapt Marais wat vergesel was van [illegible] da Silva (Portugal) en die here Smits, [illegible], en Marais van KTR. Reëlings is deur my getref met Herr [illegible] (N/Nachfolger en Herr Busch van A. [illegible] ~~[illegible]~~ uits ivm KBC beskerming is ek in Kiel deur span bevestig, maar ek het hul vanweë politieke implikasies nie vergesel nie.

(7-8 Mei 1975)
Besoek volgende firmas in Hamburg ivm KTR Vloot en Leëraangeleenthede.
AEG. Telefunken
Firma Eichweber.
" Platt GMBH

Extracts from official diary of S.A. Military Attache, FRG

Document 13
2nd. June – 1970
Visit Firma Platt GMBH on behalf of KG

3 September:
Visit Fried. Krupp Atlas Elektronik with Commander Brink at the invitation of Dr. Maas and Fr. Wächter concerning "Acoustic Zone"...

22 September:
Visit Firma Platt GMBH in Hamburg for discussions on the training of AO's Travel by Air

Document 14
Offical visits of Brig. D.J.Hamman 1973
14–17 January (Germany)
Join the Project Taurus * team and visit the firms AEG and Noske Nachfolger. The team was led by Captain Marais, who was accompanied by Commander da Silva (Portugal) and Messrs Brits, Pasche and Marais of the Armaments Board. Arrangements have been made by me and Mr. Wilrodt (N/Nachfolger and Mr. B. i. illegible...
Certain equipment concerning the KBC defence system was also inspected by the team at Kiel, but I have not told them about the political implications.
* Project Taurus refers to the construction for South Africa of 6 corvettes equipped with missiles. For details see AAB Press Release 18.3.77

Document 12
7 – 8 May 1973
Visit the following firms in Hamburg in connection with the Armaments Board (KTR), Navy and Army
AEG Telefunken
Firma Eichweber
Firma Plath GMBH

ficials of the Armaments Board and the National Institute of Defence Research are also welcomed and assisted by this company.

AEG Telefunken has produced much of the equipment for Project Advocaat. In addition this company has worked on other South African projects in close association with apartheid officials.

Some of the other companies which have been involved in military projects in South Africa and have cooperated with apartheid military officials and researchers are: August Thyssen Hütte AG; Klöckner Werke AG Osnabrück; Firma Plath GmbH, Friedrich Krupp Atlas Elektronik; Bosch Fernsehen Darmstadt; Blohm & Voss and its subsidiary R. Noske; Eltro Engineering, Heidelberg; and Leybold Heraeus GmbH, Köln.

Officials of the Armaments Board are very frequent visitors to the FRG. Many of the military personnel and scientists listed above have on some of their trips been accompanied by officials of the Armaments Board or have acted on behalf of the Board. In the first few months of 1974 the following Armaments Board visits to the FRG are among those known to have taken place.

January: Armaments Board team together with Maj. J.H. Pretorius.

March: G.J. Krige & F.J. Bell accompanied by Major C.J. Smit.

May: Commander H.J. Jooste (Navy) travelled with a team of the Armaments Board.

July: J. Bouwer was in the Federal Republic for an extensive programme.

Such visits still continue.

The links between the arms industry in the Federal Republic and South Africa are unmistakable. Various efforts are made to conceal them on both sides, and the apartheid regime goes to great lengths to disguise the connections or to hide them from public view.

Disguise is frequently in the form of ostensibly scientific visits as we have shown. But the South African Embassy in Bonn assists more directly. Communications between German companies and South Africa are being channeled through the Embassy which permits its cypher facilities to be used for this purpose. (10)

Supply of Equipment

The German Anti-Apartheid-Movement (AAB) has over the years exposed many instances when military equipment and weapons have been sent to South Africa. This evidence is well documented (11) and need not be repeated.

A great many attempts are made to disguise the equipment or to deliberately describe it in such manner as to give it a "non-military" character. The attitude adopted by the FRG authorities has been such as to actually encourage these activities.

Time and again the Federal Republic tries to alibi itself by claiming that the mere possibility that civilian equipment "may be used for military purposes ... would not have been sufficient ground for preventing their export". (12)

It seeks to give the impression that equipment clearly destined for military use would not be exported. However, there can be no doubt whatsoever that equipment which might possibly have non-military uses, is being exported to South Africa with the *full know-*

DOCUMENT 16 9/2/8/28/1/1

S E C R E T
(Single Copy)

o

15 June 1973

THE SECRETARY FOR FOREIGN AFFAIRS,
P R E T O R I A.

VISIT OF DR VOELCKER

With reference to your 137/13/1(23) of 7 June the envelope in question was handed by me personally to Dr Voelcker yesterday evening, 14 June. Because of his other commitments Dr Voelcker was not able to meet me earlier.

Dr Voelcker also gave me a copy of a telex which he had sent to Dr Roux the previous day. A photostat of this telex is attached. I pointed out to Dr Voelcker that we operate on the basis that both telex and telephone communication to South Africa is periodically monitored. I added that in this context we had warned other German firms engaged in undertakings of a confidential nature to exercise care in the use of open telex and telephone lines. These firms had been told that confidential communications to, for example, the Armaments Board could, if they wish, to be sent through this Embassy utilising our cipher facilities for this purpose. The same facilities were available to STEAG for communications with the Atomic Energy Board.

The preceding is for your own background only.

[illegible]

DBS/svdb

A M B A S S A D O R.

ledge that its destination is a military installation, and its use is to provide a military facility.

Despite claims by the South African Broadcasting Corporation that South Africa does not need West German help for the missile base and testing range at St. Lucia, equipment from the FRG has been installed there. In addition Siemens has trained technicians from the National Institute for Defence Research in the operation of the equipment, with the full knowledge that it was destined for the missile testing-range.

The St. Lucia missile base and test range is sited across the 28 S. latitude, along the Natal coast 50 km and 200 km north of Richard Bay and Durban respectively. Operating adjacent to large expanses of water – Indian Ocean and Lake St. Lucia, the range is the major rocket testing site and is strategically sited as a missile base. Its northern boundary lies only 50 km from the Mocambique border and less than 200 km from the port of Maputo. The base is regulary manned and the test range is used by various arms producing organisations and the apartheid army, navy and airforce. Rockets have been successfully launched from St. Lucia since December 1968.

The involvement of Siemens is shown by a letter from the National Institute of Defence Research in Pretoria, the first four lines of which read:

"Messrs. G. Lampen and V.C. Wikner from this Institute (NIDR) will be attending Siemens factory at Mönchen-Gladbach for instruction on the Cine Theodolite which we shall shortly be installing at the Test Range, St. Lucia." (13)

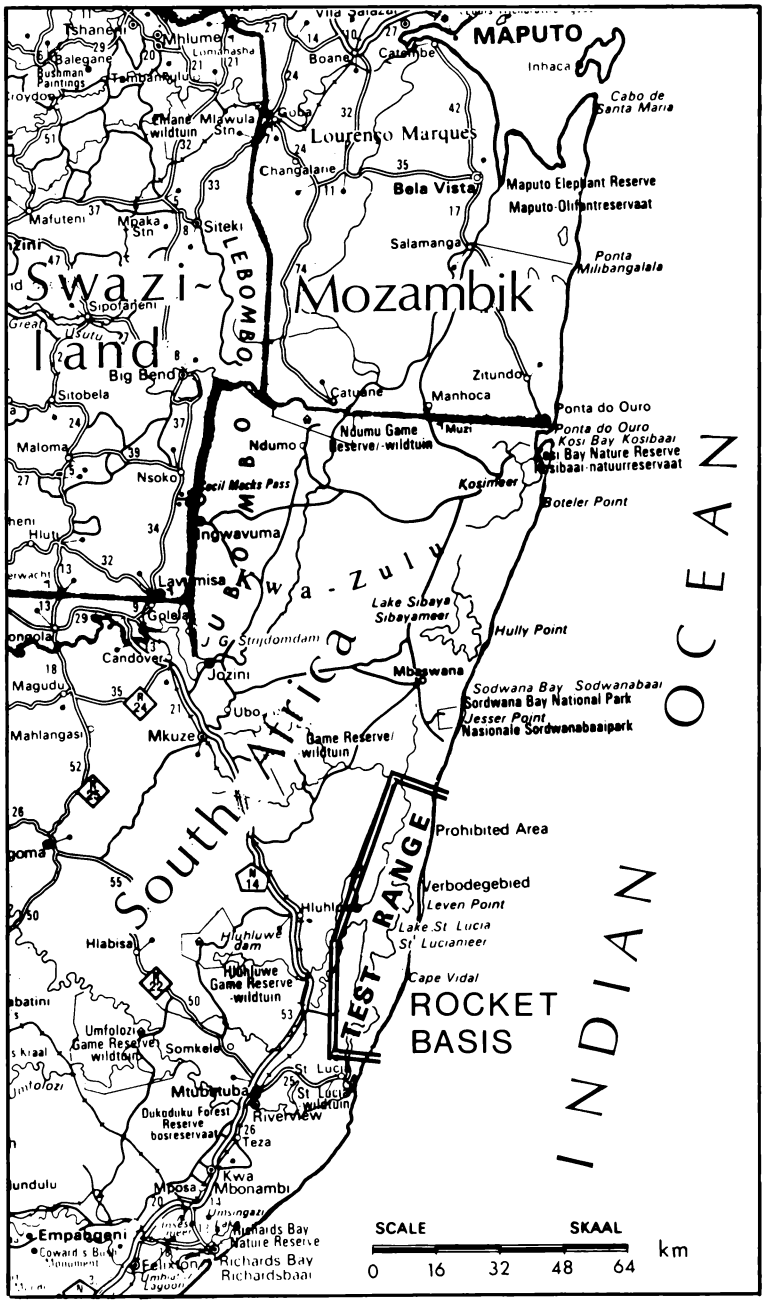
The authoritative Stockholm Peace Research Institute described the military use of a cine theodolite thus: "An instrument for measuring angles and horizon lines when aiming at a target". Installed at a South African missile base, there can be no doubt as to the target.

The invasion of Angola, the provision of planes, ammunition and equipment to Smith, the repeated incursions of South African 'police' into neighbouring states, all bear witness that the apartheid regime does not respect the territorial integrity of independent African countries, nor does it heed the decisions of the United Nations.

The Pretoria regime has declared the apartheid army's "legitimate" area of operation as all of Africa south of the Sahara. Threats have been freely and frequently made against member states of the OAU and UN. Notwithstanding, the Federal Republic of Germany continues to arm apartheid, even where, as in the case of St. Lucia, German equipment directly assists the aggressive potential of the apartheid regime.

The Federal Government has expressed disappointment that its statements are not believed by the OAU. Yet to the abundance of evidence published by the African National Congress it can offer only general denials. Clearly the FRG does not wish facts to shatter the illusion it seeks to create and tries to sustain.

It is on facts substantiated by documentary evidence that the charges against the Federal Republic are based. It is on its action and ommission and not on its words that the government of the Federal Republic should be judged.


MAPUTO
Inhaca
Cabo de Santa Maria
Lourenço Marques
Boane
Catembe
Changalane
Bela Vista
Maputo Elephant Reserve
Maputo-Olifantreservaat
Salamanga
Ponta Milibangalala
Swazi-land
Mozambik
LEBOMBO
Siteki
Mbaka Stn
Mafuteni
Sipofaneni
Big Bend
Sitobela
Catuane
Manhoca
Zitundo
Ponta do Ouro
Ponta do Ouro Kosi Bay Kosibaai
Kosi Bay Nature Reserve
Kosibaai-natuurreservaat
Ndumo Game Reserve/wildtuin
Muzi
Kosimeer
Boteler Point
Maloma
Nsoko
Cecil Macks Pass
Ingwavuma
Lavumisa
Golela
Candover
Jozini
Lake Sibaya
Sibayameer
Hully Point
Mbazwana
Sodwana Bay Sodwanabaai
Sordwana Bay National Park
Jesser Point
Nasionale Sordwanabaaipark
Magudu
Mahlangasi
Ubombo
Mkuze
Game Reserve/wildtuin
Prohibited Area
Verbodegebied
Leven Point
Lake St Lucia
St Lucianeer
Cape Vidal
ROCKET BASIS
TEST RANGE
Hluhluwe dam
Hluhluwe Game Reserve wildtuin
Hlabisa
Umfolozi Game Reserve wildtuin
Somkele
St Lucia
St Lucia wildtuin
Mtubatuba
Riverview
Dukuduku Forest Reserve bosreservaat
Teza
Kwa Mbonambi
Mposa
Empangeni
Richards Bay Nature Reserve
Richards Bay
Richardsbaai
Eshowe
SCALE
SKAAL
0 16 32 48 64
km
South Africa
INDIAN OCEAN

Nuclear Cooperation

It is now nearly two years since the publication of *The Nuclear Conspiracy*. Before then there had been many reports of the involvement of the Federal Republic in South Africa's nuclear programme. They had all been met with blanket denials and claims that there was no evidence. *The Nuclear Conspiracy* (14) spelt out in great detail the areas of collaboration and substantiated the charges with documentary evidence emanating from official South African and German sources. The evidence on which the charges were based has been available, and since September 1975 the Federal Government has had ample opportunity to refute it.

It is significant, however, that at no stage have the FRG authorities endeavoured it to rebut or deal with the evidence we published in any way whatsoever.

Initially, the only response from the Federal Government was a general denial. Faced with the mass of proof published in the West German press, there appeared smears about the source of the charges, and claims that subversive agents were engaged in a conspiracy against the FRG.

On the charges themselves, there have been generalised and unspecific denials, interspersed with characterisation of the documentation as "absurd" and "incorrect" and finally as a "mixture of truth, semi-truth, and speculation". (15) One has waited in vain for the FRG to spell out and sift the evidence, to identify at least that part which it is admitted is the truth, to balance the "semi-truth", and correct the speculation by providing its own interpretation.

In October 1975, the FRG government circulated a four page memorandum to African governments under the title "Allegations of Nuclear Cooperation with South Africa". Over 30 % of this reply is concerned with general statements of policy on matters unrelated to its nuclear collaboration. The detailed charges of the ANC are merely dismissed as "absurd" and "incorrect" and with one exception (with which we deal below) no comment is made on the mass of documents published and referred to in *The Nuclear Conspiracy* and in various German newspapers and magazines. More than a year of study and consideration have not enabled the Federal German authorities to do any better – for again in the memorandum to the OAU presented in January 1977 they refrain from referring to the evidence provided by the ANC.

Instead the Federal Government chooses to make unsubstantiated and totally false innuendos about the source of the documents and charges, thereby hoping to obscure the fact that it has not dealt with the evidence published. There is a wealth of detail that needs to be explained away and numerous questions that need to be satisfactorily answered before the FRG is able to deny with any credibility at all, its complicity in South Africa's nuclear programme. Are the documents published forgeries? Did the numerous vi-

sits of West German officials to the Atomic Energy Centre at Pelindaba not take place? For example, why did the Federal Government decide to send such a high-powered delegation to visit Pelindaba in April 1972 , and what was discussed there, except nuclear collaboration? Did the Federal Minister of Science in 1970 not discuss with the apartheid ambassador the possibility of bringing South Africa into the joint German, British, Dutch gas centrifuge enrichment project, four months before South Africa announced her own 'unique' process?

The 1972 delegation to South Africa was led by Dr. Haunschild, Secretary of State Ministry of Education and Science, and Chairman of the nuclear research institute GfK. Other members of his Ministry, who accompanied him were: Dr. Dietmar Frenzel, responsible for the Technological Research and Development subdivision; Dr. Martin Nettesheimer, responsible for bi-lateral relations in the subdivision for International Cooperation; and Dr. Rainer Gerold, Dr. Haunschild's executive assistant. The FRG government's attitude is revealed in a letter to Pretoria by the apartheid ambassador dated 24.2.1972, in which he wrote: "It is quite clear from my discussions with Dr. Haunschild that there is a great deal of official interest in this visit. It is not simply a courtesy gesture in response to an invitation from Dr. Roux (Chairman of the South African Atomic Energy Board). Hence the inclusion of other experts in the party, although the invitation was issued originally only to Dr. Haunschild and his wife."

Ignoring the evidence of involvement at government level the FRG memorandum to the OAU deals only with three cases of supposed private commercial involvement in the nuclear programme. The FRG chooses thus to reply only on certain points carefully selecting and even distorting the charges made against it. Even then it has had to resort to less than the truth, and finally to deliberate mistatement of the facts. To see the FRG reply in its true perspective, we restate here the first two paragraphs of *The Nuclear Conspiracy* which summarise the ANC's main accusation against the Federal Republic of Germany.

"A uranium enrichment plant is to be built in South Africa. The entire project has been developed with the assistance of the state-owned Society for Nuclear Research (Gesellschaft für Kernforschung – GfK), Karlsruhe, Federal Republic of Germany (FRG), the state-controlled company STEAG in Essen (FRG) and with the agreement and active participation of the Federal government in Bonn.

"Though the Pretoria regime has claimed that it has developed a 'unique' process for uranium enrichment, the process to be used is an adaptation of the jet nozzle method developed in the FRG by Prof. Becker. The adaptation has been carried out in collaboration with scientists from the FRG and in conditions of great secrecy."

DOCUMENT 1

A/VIS/5/9

Bundesministerium der Verteidigung

Protokollreferat
Az. 02 - 25 - 25

53 Bonn 1, den 30. Mai 1974
Postfach 161
Fernsprecher 2 01 61 - 9165/9160
Fernschreiber 0886 575, 0886 576

An den
Militär-, Luftwaffen- und Marineattaché
bei der Südafrikanischen Botschaft
Herrn Brigadegeneral P.E.K. BOSMAN

5 K ö l n 1
Neumarkt 1

Betr.: Informationsbesuch einer südafrikanischen Delegation (Computerexperten) im September 1974 bei der Bundeswehr

Bezug: Ihr Schreiben Az.: A/VIS/9 vom 13. 5. 1974

Sehr geehrter Herr General!

Das Bundesministerium der Verteidigung beehrt sich, den Erhalt Ihres Schreibens zu bestätigen und teilt Ihnen mit, daß der Besuch Ihrer Delegation willkommen ist.

Zu Ihrer Information darf ich Ihnen jedoch mitteilen, daß es einen Voll-Duplex-Betrieb von 2 Rechenanlagen, wobei nach Ausfall einer Anlage die zweite den Betrieb der ersten automatisch übernehmen kann, bei der Bundeswehr nicht gibt. Ein Voll-Duplex-Betrieb wird nach unserer Kenntnis nur bei der zivilen Flugsicherung durchgeführt.

Was Ihrer Delegation bei der Bundeswehr gezeigt werden könnte, wäre ein Mehrrechnerbetrieb, bei dem 2 Rechner auf einen gemeinsamen Datenbestand zurückgreifen und die Peripheriegeräte wahlweise auf den einen oder anderen Rechner schaltbar sind.

Mit vorzüglicher Hochachtung
Im Auftrag
Strauß
(S t r a u ß)

Translation

Federal Ministry of Defence
Protocol Section
Ref 02-25-25

53 Bonn. May 30th, 1974
P.O.B. 161
Tel.: 20161-9165/9160
Tlx.: 0 886 575, 0 886 576

To the
Military, Air Force and Navy Attache,
South African Embassy
Brigadier P.E.K. BOSMAN

5 Köln 1
Neumarkt 1

Re: Information Visit of South African Delegation (Computer Experts) to the Bundeswehr in September 1974.
Re: Your Letter Ref. No.:
A/VIS/9 of May 5th, 1974

Dear General !
The Federal Ministry of Defence has the honour to acknowledge the receipt of your letter and informs you that the delegation will be welcome. For your information I may notify you that the Bundeswehr does not use a Full-Duplex installation with two computers in which after the breakdown of a unit the second one takes over the operations of the first automatically. According to our knowledge a Full-duplex installation is only used by the civilian air traffic control.
What could be displayed to you while visiting the Bundeswehr, however, is a multiple computing device where two computers use a joint stock of data and where the peripherical appliances can be switched either to one or the other computer alternatively.

Yours very truly,
by order
(Strauss)

Scientific Cooperation and Transfer of Jet Nozzle Technology

In its memorandum to the OAU, the FRG claims that

"no government-level agreement on scientific and technological cooperation exists between the Federal Republic of Germany and the Republic of South Africa."

However, since 1962 there is in existence a cultural agreement with the apartheid regime article 1 of which reads:

"The contracting parties shall strive to facilitate

(a) the interchange of university staff, lecturers, teachers, research workers, students, journalists and other approved persons;

(b) cooperation between scientific and cultural institutions and societies of the two countries."

This agreement, which provided at government level for cooperation on scientific and technological matters, has been in operation between 1962 and 1977, including the period when the initial transfer of nuclear technology took place. The statement that no government level agreement on scientific and technological cooperation exists is therefore a deliberate attempt to deceive the OAU.

We note however, that the Federal Republic has not denied that there is scientific and technical cooperation with South Africa and its apartheid institutions. The FRG government merely seeks, like Pontius Pilate to disassociate itself from the crime. However, the stains are indelible and cannot be washed away.

It was through an exchange of scientists and cooperation of scientific institutions that jet nozzle technology was transfered to South Africa. Not only was the FRG government a party to this, in that the government level agreement with South Africa provided for such exchanges; but more culpably in that the institution concerned (Gesellschaft für Kernforschung – GfK) is government sponsored and the research for the jet nozzle process was financed by the Federal Government.

GfK, the nuclear research centre at Karlsruhe, has as its chairman the Secretary of State in the Ministry of Education and Science, who as revealed in *The Nuclear Conspiracy* visited Pelindaba and was personally involved in assisting the apartheid regime. South African scientists have been and are still being welcomed at Karlsruhe.

The purpose of their visits has been to obtain technological and scientific information. Moreover, as previously stated, South African scientists were seconded by the Atomic Energy Board to Karlsruhe for lengthy periods of up to two years, for *the specified purpose of training* in various aspects of technology. German scientists, including Professor Becker were attached to Karlsruhe when they visited South Africa and this German state-financed institute has repeatedly refused to provide any information about the allegedly 'innocent visits' by South African and German scientists.

Supply of Nuclear Reactors

The contract for supplying reactors for the Koeberg station was not awarded to German companies. It should however, be noted that the German government has stated specifically, that it will in future supply reactors to South Africa. This is the policy of both

the Government and the ruling SPD party.

The Uranium Enrichment Plant

The Federal Republic has tried to pass off involvement in the uranium enrichment plant in South Africa, by claiming that the German firm STEAG has been involved merely in conducting a feasibility survey. As we will show this is not so. However, before dealing at length with the involvement of STEAG we correct some further distortions in the German memorandum.

Jet Nozzle Process and Weapons Grade Uranium: The Federal Republic has already shifted from its original assertion in the memorandum and categoric statement that the jet nozzle process was not suitable for manufacturing weapons grade uranium. In a letter to the German Anti-Apartheid Movement dated 7.3.1977, the FRG foreign ministry wrote:

"The high grade enrichment necessary for this could only be achieved by launching many successive separation phases. The installation would thus need to become of such technical proportions as would be economically unjustified."

The African National Congress has always stated that South Africa's nuclear programme is neither economically justified nor viable. There is every reason to believe otherwise. This is one of the major indicators that confirms our view, that the programme is not a commercial one, but one designed for military purposes. The size of the installation at Valindaba also confirms that South Africa is indeed to set up "many separation phases."

Licence for South Africa: On this question the German memorandum once again resorts to semantic trickery. It states that the "Republic of South Africa has received no licence ... nor has it at any time sought such a licence." It omits, however, the German company STEAG which owns the world rights for the commercial use of the Becker process of uranium enrichment, applied in 1973 for permission to sub-licence to the South African Atomic Energy Board and the Uranium Enrichment Corporation (UCOR). (16)

However, before that date a considerable amount of basic scientific information on the Becker process had already been transferred to South Africa as revealed in *The Nuclear Conspiracy* and further explained above. Further research was conducted and continues in South Africa, and some variations and improvement on the original Becker process were made there. These adaptations may be sufficient to give the process a distinct character and even merit the label "Becker South Africa", but the origin is unmistakable. The child may be illegitimate, but the paternity cannot be denied.

It can be noted by way of confirmation, that three years after publicly proclaiming that South African scientists had 'invented a unique' uranium enrichment process, the Uranium Enrichment Corporation of South Africa nonetheless thought it necessary to obtain a licence for its commercial exploitation from STEAG. This was an acknowledgement

DOCUMENT 18

steag
Aktiengesellschaft

STEAG Aktiengesellschaft 4300 Essen Postfach 7020

4300 Essen
Bismarckstraße 54
Tel.: (02141) 79941
Telex: 0857693

S E C R E T

Dr. A.J.A. Roux
President of
Atomic Energy Board
of South Africa

Private Bag 256

P r e t o r i a /Südafrika

Ihre Zeichen	Ihre Nachricht vom	Unsere Zeichen	Sachbearbeiter	Durchwahl	Datum
		VÖ/G1		7944 2339	Oct.2,1973

Dear Dr. Roux,

Referring to article 3 of our agreement we have requested formal approval for sublicensing our rights according to our contract with Gesellschaft für Kernforschung Karlsruhe (GfK). GfK has agreed to our request in principle but needs approval of Staatssekretär Haunschild as chairman of GfK supervisory board.
We have unofficially been informed that on request of Mr. Haunschild Staatssekretäre of Ministery of Economy, Ministery of Foreign Affaires and of Chancellor Brand's office have met on 27th of September to discuss this matter. They have given a positive reaction to the GfK position. However on request of the Ministery of Foreign Affaires a legal investigation to find out whether the Außenwirtschaftsgesetz is applicable in this case is still necessary. The expert of the Ministery of Economy, who has meanwhile contacted us has already unofficially confirmed that this law is not applicable and that he cannot see a reason to withhold Mr. Haunschild's approval.
We have once more underlined the urgency of this matter and expect the final decision within the next days. We are extremly sorry for this delay and shall keep you informed about any further steps.

Yours sincerely,

STEAG
Aktiengesellschaft

(H. Völcker) i.V. (H. Geppert)

that the allegedly South African process was basically the Becker one.

When the question of granting a licence to South Africa arose, it was discussed in the West German Cabinett on October 17th, 1973(17) At that meeting, Chancellor Brandt and all Ministers with two exceptions, were in favour of permitting STEAG to sub-licence its rights for the commercial application of the Becker process. Only the vigorous opposition of Ministers Eppler and Maihofer prevented a final decision in favour of granting the licence made on that day. The decision was postponed for seven days. STEAG alerted by the unexpected opposition withdrew its application for approval of a licence, thus leading the opponents to believe that STEAG participation in building up South Africa's nuclear potential had come to an end without the need for government action.

However, as we show below STEAG collaboration did not cease at that stage, nor as the FRG memorandum claims was it limited to making a feasibility survey.

STEAG-UCOR Collaboration

At the outset it should be made clear that STEAG is not a purely private commercial concern, but a company in which the Federal government has a shareholding, and which it controls through the provision of finance.

In 1970, STEAG had acquired the world rights for the commercial exploitation of the Becker process for uranium enrichment from GfK, and in 1973 a "memorandum of understanding" was concluded between UCOR/AEB South Africa and STEAG. Article 3 of this agreement provided for the sublicensing of STEAG's rights to UCOR/AEB subject to the approval of GfK. (18) This clause concerning the sub-licensing alone refutes the FRG claim on the nature of the relationship between STEAG and UCOR in 1973. The responsibility for endorsing the sub-licence was passed upward from GfK to its Chairman, Secretary of State Haunschild, then to a meeting of the Secretaries of State in the Economics and Foreign Ministries and Chancellor Brandt's office, and finally to the Cabinet.

The decision which STEAG had hoped was a routine matter, now threatened to provoke public discussion of the degree and advisability of German-South African nuclear cooperation. Hence STEAG's tactical withdrawal after the Cabinet meeting of October 17th, 1973, and the attempt to devise less controversial and public methods of cooperation, leading to a new contract of agreement signed in March 1974.

South Africa also alerted by the opposition decided not to put all her eggs in one basket. She started to broaden the base of collaboration in Germany, by trying to involve other German companies and groups and began to seek collaboration with other countries such as Iran.

South Africa was anticipating advice that was later proferred by West German State Secretary Rohwedder in the Ministry of Economic Affairs. According to Vorster's Bonn Ambassador, Rohwedder advised that "it was important that we should press STEAG to agree to widen the area of

cooperation on the German side by bringing into a new consortium other companies with a major interest in this field. He specifically mentioned Kraftwerk Union and suggested that we also secure the collaboration of Prof. Mandel of RWE (The Professor of course is an old friend of ours.) I said that Dr. Koornof and I had already broached this matter in our discussions with Dr. Bund during our working breakfast with Ruhrkohle in Essen last month ..."(19)
In this connection South Africa's activities began in October 1973 when Dr. Diederichs, then South Africa's finance minister, began discussions with a view to obtaining private German finance for the uranium enrichment project. On the afternoon of October 30th (3 pm) he met Dr. Paul Lichtenberg, Board Chairman of the Commerzbank; and that evening (7.3o pm) he met with Jürgen Ponto, Chairman of Dresdner Bank and Board member Helmut Hoensgen; the Vice Chairman of Metallgesellschaft A.G. Casimir Prinz Wittgenstein and Paul Ungerer, Chairman of the Degussa Board. On November 8th (afternoon) there were discussions with Dr. Wilfred Guth of the Deutsche Bank Board and that evening with Dr. Karl Klasen, President of Deutsche Bundesbank, the national bank of the FRG. On the following morning, November 9th, discussions were held with the Honorary Chairman of the Board of Deutsche Bank, Herman Joseph Abs. As the chart (p 32) illustrates, most of these banks and companies are involved in the West German atomic industry.
Discussions on a new basis of cooperation between STEAG and UCOR continued however. Dr. Voelcker of STEAG and the inventor of the jet nozzle system Prof. Becker of Karlsruhe visited Pelindaba from March 2nd-9th, 1974. Details of a new contract were agreed and after approval by the STEAG board a contract was signed in Essen on March 19th, 1974. The correspondence and documentation regarding this contract was sent to and from the Federal Republic by the South African diplomatic bag. Drs. Bund, Schulte and Voelcker of STEAG paid a further visit to Pelindaba from May 5th - May 13th, 1974.

Just a feasibility survey: The Federal Republic has claimed that STEAG involvement was limited to carrying out "with the South African firm of UCOR in 1973 a comparison of the South African enrichment process and the German separation nozzle process with regard to their technical feasibility and economic efficiency. As a result of that comparison, the Republic of South Africa felt that its own process was more economical and therefore showed no interest in acquiring a licence for the German process. Since then there has been no further cooperation between STEAG and UCOR."
The truth of STEAG's involvement in both content and time scale goes well beyond this FRG statement. Apart from the question of the licence there are other aspects of the truth that the FRG government has deliberately sought to conceal from the OAU. STEAG's interest in the South African enrichment plant initially included:

1. Financial participation in the commercial plant including

a) the provision of capital on which interest or a minimum dividend would be payable, as well as profit once the plant was operational.
b) the right to process a fixed amount of uranium through the plant, the resulting enriched uranium to be considered as belonging to STEAG, and which could be used as fuel for German reactors domestically or to Brazil, Iran and elsewhere.

2. The provision of STEAG's technical know-how by participating in the design, planning and construction of the plant, its installations and operation. STEAG was also concerned to ensure that contracts for supply of components for the plant should go to German companies and to act as technical agent in the FRG placing the orders and checking and testing the equipment before export.

A feasibility survey would be necessary to assess and work out costs and methods of putting into operation the pure research and applied technology of the pilot plant. This was undertaken, but as various correspondence and records of meetings indicates, STEAG's involvement went well beyond that.

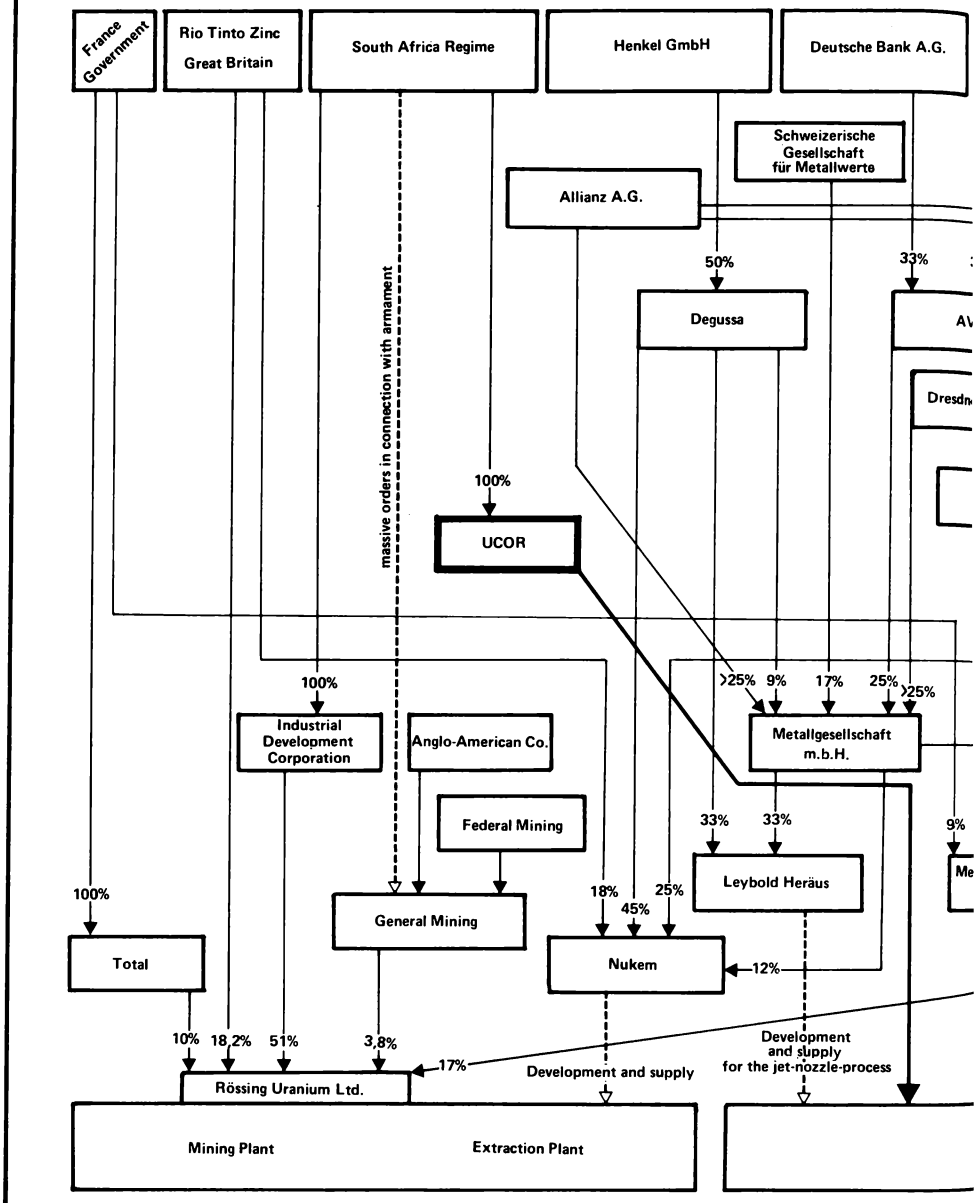
Before April 1975, the results of the survey were known. STEAG described them as "positive" (20). Thereafter the parties began to finalise the details of the partnership arrangements. Despite the absence of a formal licencing agreement, STEAG had clearly gone a long way in providing know-how and had been functioning as a technical agent and working with UCOR on specific projects (21). STEAG chairman Schulte at least considered that STEAG should not be able to collect its reward for its assistance: "We are morally entitled" he claimed (22).

However, on March 31st, 1976, the first *and only the first* (financial participation) of the two main avenues of involvement by STEAG was ended when the "contract of cooperation between UCOR and STEAG was terminated", after "an agreement about the conditions for a participation by STEAG in the enrichment plant could not be reached." As internal confidential memorandum from Dr. Voelcker to Dr. Bund spells out the reasons for failure to agree is reproduced as Document 19.

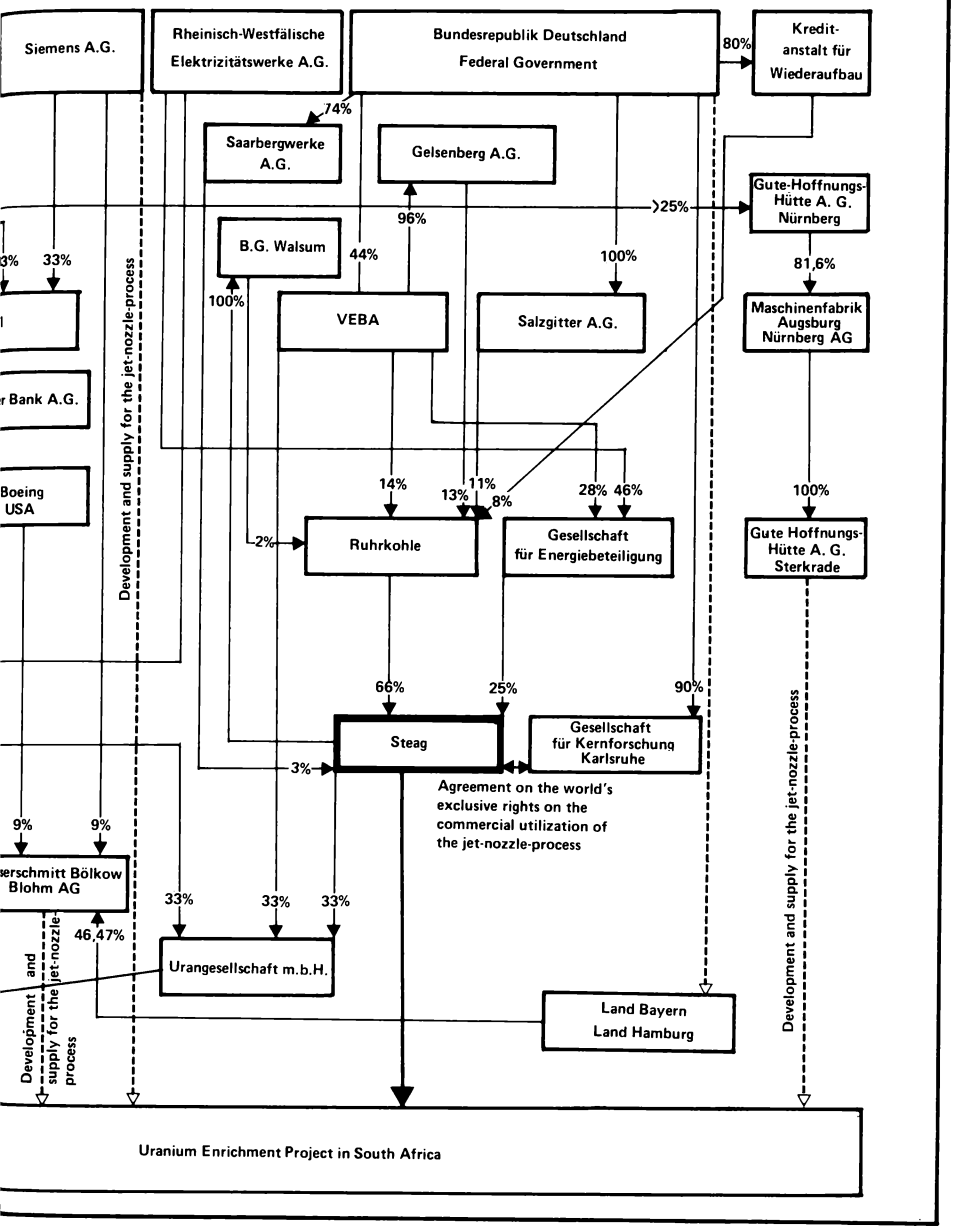
This STEAG memorandum provides further proof that this company's involvement in the South African uranium enrichment projects goes well beyond merely undertaking a feasibility survey as the Federal government alleges. In as much as the govern ment will have informed itself fully on the matter before issuing denials, the statement to the OAU can only be considered as a deliberate attempt to mislead member governments.

Despite the FRG's public posturing, clearly STEAG was given cause to believe that even after the Cabinet meeting of October 1973, financial guarantees for its investment would be forthcoming, or else it would not have pursued the matter into 1976. It was only the international condemnation that followed the publication of evidence of FRG government collusion in *The Nuclear Conspiracy*, and the stead-

Bonn's capital share and influence



in the nuclear cooperation with SA



fastness of the OAU, African, and other progressive governments in their condemnation, that prevented the FRG government from proceeding with the guarantees. However, even then, the FRG government did not instruct STEAG to withdraw. We repeat that STEAG is a state-controlled company.

STEAG's withdrawal from financial participation stemmed from the non-fulfilment of its expectations of obtaining control over a large quantity of enriched uranium. While negotiations with STEAG were being drawn out, South Africa had already negotiated an agreement to supply Iran with a very large amount of enriched uranium, in exchange for which Iran had agreed to provide financial help for the plant(23)

Political developments in the interim period (1974-76) had necessitated a reassessment of the availability of natural uranium, and a reconsideration of the possible market for South African enriched uranium. Contrary to expectations, South Africa has announced that the capacity of the enrichment plant will not be decided until 1978.

It would appear that the apartheid regime is no longer confident of its continued illegal control over Namibia, and is therefore unwilling to commit itself contractually and financially on the basis of resources in Namibia. (Though this has not prevented South Africa encouraging outside investors to put their money into Namibia or into South African companies with Namibian interests.) Hence South Africa has insisted that STEAG provide for its share of the product, sufficient natural uranium ore from outside the South African market. Furthermore, with the availability of Iranian finance, South Africa was no longer totally dependent on STEAG and could set tougher terms. We emphasize, however, that South Africa still requires finance for the project, and the involvement of German banks should not be ruled out. As we have shown above, attempts to obtain their financial participation go back to 1973

Furthermore, STEAG has only terminated its plan for financial participation. German firms will still be providing components, and STEAG can continue to act as technical agent or intermediary in the supply of German equipment.

Equipment in Disguise

In view of the international disapproval that now attaches to the supply of nuclear and military equipment to South Africa, West German firms have been actively engaged in trying to disguise their exports as "civilian" or non-nuclear.

One example of these firms' operations is provided by the compressors exported to South Africa for the enrichment plant. Following the disclosures in September and October 1975 of FRG collaboration in the nuclear programme, the opposition to the continued supply of compressors grew. The compressors being exported were supplied by Gutehoffnungshütte Sterkrade which is a subsidiary of MAN of Nuremberg. This company has admitted that it supplies compressors for a variety of purposes to South Africa and that "in order to assure full use

of the capacity of its factory" it would "obtain orders ... for all areas of use." (24) At the same time, the company argues that the compressors used in uranium enrichment are "after all, entirely normal compressors" and therefore should not be subject to export control. (25)

A German citizen has requested the Public Prosecutor of Nuremberg to take legal proceedings against MAN. The authorities are thus provided with an opportunity to obtain complete disclosure of the export of all compressors to South Africa and to verify to the satisfaction of the OAU, to what use the compressors are being put.

The Federal Government makes little effort to discourage the activities of these companies that seek to disguise their support for apartheid. As late as November 24th 1975 the Federal Government was still "going to see to it" that the entire jet nozzle system was placed under export permit regulations. In anticipation of this possibility STEAG urged Prof. Becker to produce "a credible description of the unimportant military significance of the jet nozzle system without delay". This memorandum was written after the ANC releyations in *the Nuclear Conspiracy*. Though it was claimed at the time, and since, that South Africa's interest in the jet nozzle process had ceased some considerable time before, this memorandum has written on it, in Dr. Voelker's handwriting the words: Re: South Africa (see p 36)

The memorandum illustrates the lengths to which West German companies go in order to disguise their exports as civilian and non nuclear. As various statements of the FRG government make clear, the government does little or nothing to discourage or prevent such activities. It is against this background that one must view the FRG claim that German companies are not breaking the law and that "long ago it created the statutory basis for a total embargo on deliveries of weapons to South Africa." This is manifestly not so.

Such statutory provision as has been made is full of holes of sufficient variety and size to allow the free flow to South Africa of blueprints for corvettes, engines for missile carrying patrol boats, military vehicles, Transall transport planes and airbuses, equipment for the missile range at St. Lucia, and technology and components for South Africa's uranium enrichment plant.

Unless urgent and immediate action is taken, components and further technical know-how will be provided for South Africa's uranium enrichment plant. The machinery may not be labelled built by STEAG, but it will bear the unmistakeable imprint: "Built with the assistance of the Federal Republic of Germany".

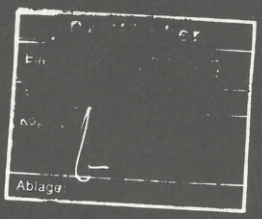
Uranium Enrichment for Weapons

South Africa has never hidden her desire and now her capacity to produce nuclear weapons. Friends of the apartheid regime such as the Federal Republic of Germany continue to claim that there is no connection between South Africa's uranium enrichment plant and nuclear weapons. Earlier this year when questioned about South Africa's nuclear capacity, apartheid propagandist Minister Connie Mul-

DOCUMENT 21

S T E A G
Kerntechnische Anlagen

Essen, 25. Nov. 1975
Wen/Bl



N o t i z

Betr.: Ausfuhrgenehmigung für Nuclear-Komponenten

H. Prof. Fiedler teilte mir telefonisch mit, daß er am 24.11.75 an einer Besprechung im Wirtschaftsministerium in Bonn teilnahm mit dem Ziel, die Verdichter für Urananreicherungsanlagen von den Exportauflagen freizubekommen. H. Fiedler ist der Meinung, daß die Maschinen dieser Kontrolle in Zukunft nicht mehr unterliegen werden, da man seitens GHH so argumentierte, daß es sich hierbei im Grunde um völlig normale Verdichter handelt.

Was jedoch für alle an der Verbreitung des Trenndüsenverfahrens Interessierte wichtig ist, war die Ankündigung des ebenfalls anwesenden H. Heil (BMFT), daß dieser alle Hebel in Bewegung setzen werde, um das gesamte Trenndüsenverfahren unter Ausfuhrgenehmigung zu stellen. Es empfiehlt sich deshalb, H. Prof. Becker schnellstmöglich von diesem Trend zu informieren, so daß die geringe militärische Bedeutung des Verfahrens schnellstmöglich glaubhaft dargestellt wird.

D: Herrn Dr. Völcker
Herrn Geppert

Translation

Re: South Africa

STEAG
Nuclear Installations

Essen 25 Nov. 1975
Wen/BI

Memo

Re: Export permission for nuclear components

Prof. Fiedler informed me by telephone that he participated in a meeting at the Federal Ministry of Economic Affairs in Bonn on November 24th, 1975 with the aim of achieving exemption from the export regulations for the compressors for uranium enrichment plants. Mr. Fiedler is of the opinion that the machines will in future no longer be subject to these controls, since the GHH (Gutehoffnungshütte, the parent company of MAN, manufacturers of compressors for uranium enrichment plants), argued that the machines in question are, after all, entirely normal compressors. However, the point of importance for all those interested in the spreading of the jet nozzle system was the announcement of Mr. Heil of the Federal Ministry of Research and Technology that he will use all means at his disposal to see to it that the entire jet nozzle system is placed under export permission regulations. It is therefore recommended that Prof. Becker be informed about this trend as quickly as possible in order that a credible description of the unimportant military significance of the jet nozzle system be produced without delay.

Sd. Wenzel
(Head of Dept. on Nuclear Installations)

cc. Dr. Voelcker
Mr. Geppert

der, once again proclaimed the relationship:

"Let me just say that if we are attacked, no rules apply at all, if it comes to a question of our existence. We will use all means at our disposal, whatever they may be. It is true that we have just completed our own pilot plant that uses very advanced technology and that we have major uranium resources." (26)

South Africa now has two paths open to obtain nuclear weapons. In the enrichment plant the necessary concentration for weapons grade uranium can be achieved by processing through sufficient separation stages. In addition South Africa can produce uranium enriched to only 3 %, and feed this as fuel into the two research reactors supplied through US technology, or more likely into the Koeberg reactors which are being supplied by France. In this way, there would be available plutonium suitable for weapons and subject to no international controls.

The Western friends of the apartheid regime have played their part in bringing South Africa to this stage where she threatens the security of Africa and the peace of the world. Research reactors and fuel from the USA, power reactors from France, technology and equipment from the Federal Republic of Germany. That is the wider extent of the nuclear conspiracy. Its victims will be Africans.

NOTES

1. Ambassador Sole to Under Secretary of State Hans van Dalsen. Letter 4 April, 1974. Der Spiegel, 6 October, 1975
2. Document 1, p 6
3. Document 3, p 11
4. Document 4, p 24
5. Document 5, p 40
6. The Engelter File Documents 5-9,p 40
7. Document 10, p 44
8. Document 11, p 46
9. The Engelter File Documents 5-8,p 40
10. Documents 12, 13, 14 p 16
11. Press Statement Anti Apartheid Movement Bonn, 12.11. 1976
    AAB Press Release: The Military and Nuclear Cooperation of the FRG with the Apartheid Regime in Pretoria. Reply to a Memorandum 18 March, 1977.
12. FRG Memorandum to the OAU, 17 January 1977
13. Document 17 p 48
14. Reproduced p 54
15. Statement by FRG Government, Spokesman Klaus Bölling, Associated Press, 5.10.1975
16. Document 18, p 28
17. Der Spiegel, 20 October, 1975
18. Document 18, p 28
19. Confidential Letter Sole to Brand Fouries, 2 May, 1975
20. Der Spiegel, 20 October, 1975
21. Document 20 p 50
22. Ibid.
23. International Herald Tribune, 13 October, 1975
24. Press Statement MAN, February 2nd, 1977
25. Confidential Inter Office Memo, STEAG Essen, 25 November, 1975, Document 21 p 36
26. Washington Post, 16 February 1977

What Can Be Done

1. The forthcoming session of the United Nations will once again find South Africa on the agenda. The time is long overdue for recommendations to be translated into action. Experience has shown that non-mandatory embargoes are persistently ignored by South

Africa's collaborators or so qualified and interpreted as to allow assistance to continue. The only certain method of stopping technological and other assistance reaching the apartheid forces is for the Security Council to impose mandatory sanctions.
The African National Congress calls upon all governments to move from verbal denunciation to concrete action, and to pledge support — clearly and unequivocally — for total mandatory sanctions against the apartheid regime.

2. All governments organisations and individuals who support the struggle for liberation of the South African people can take actions at a local level to stop strengthening apartheid. The South African arms industry has established contact with munitions companies, scientists, research institutes and universities in many countries. Vigilance, publicity and action by solidarity organisations, political parties, churches, trade unions and works committees, scientific organisations, and students can put an end to this sort of collaboration with apartheid oppression.
Though it is not possible to reverse the flow of technology that has already benefitted South Africa's nuclear programme, apartheid still requires international assistance to realize its nuclear capacity.
3. Foreign investments, loans, and credits will be needed to provide the finance for the uranium enrichment plant. Components for the plant will have to be imported, as will technology for South African industry. South Africa's investment capacity will be stretched to provide its own share in the enrichment plant and ancilliary industries.
It becomes all the more important therefore to stop any economic assistance reaching South Africa. Foreign investments in any section of the apartheid economy will free resources and allow them to be diverted to the nuclear and armaments industries.
Step up the pressure to end trade with South African and in particular any components reaching the uranium enrichment plant.

INVEST IN FREEDOM

STRENGTHEN THE FORCES OF LIBERATION

SUPPORT THE AFRICAN NATIONAL CONGRESS IN THE JUST STRUGGLE OF THE OPPRESSED PEOPLE OF SOUTH AFRICA

AMANDLA! MAATLA!

DOCUMENT 5

South African Council for Scientific & Industrial Research CSIR

SECRET

Our file
RVN 7/3/3/Engelter

Your file

Telegrams NAVORS
Telephone 74-6011
P.O. Box 395, Pretoria

/DIPLOMATIC BAG/

5th November, 1969.

Dr. P. le R. Malherbe,
Scientific Counsellor,
GERMANY

Dear Dr. Malherbe,

Overseas Visit : Dr. A.G. Engelter

Dr. A.G. Engelter, a Senior Chief Research Officer of the National Research Institute for Mathematical Sciences will shortly be visiting various establishments in Germany and Italy on behalf of the S.A. Navy.

Following a decision of the Chief of Defence Staff, at highest level, the visit, including the classified visits, must be arranged by the Scientific Counsellors, although naturally in close consultation with the Military Attachés. I shall, therefore, be grateful if you would make arrangements to obtain clearances for Dr. Engelter

DOCUMENT 6

SECRET
SECRET

NATIONAL RESEARCH INSTITUTE FOR MATHEMATICAL SCIENCES

NRIMS/G/b/K/67/7
b/69/274

Appendices to Itinerary of overseas tour by Dr. A.G. Engelter

General

Dr. Engelter, who is in the Solid State Electronics Division, is stationed at the Simonstown Naval Base, where he is engaged in the instrumentation side of project Tyrant. His particular interests are :

(i) Transducers (pressure, magnetic, sonic and ultrasonic)

(ii) Signal transmission and processing, including the usage of such equipment, for example analogue and digital data logging systems.

(iii) The electronics only of modern mines, i.e. sensors, decision-making circuitry and power sources.

(iv) Degaussing of ships : mainly in flux measurements (0.5 m Oe to 50 m Oe) and numerical mathematical methods for extrapolating these measurements.

Instrumentation is required for monitoring the signatures of S.A. Navy ships, namely pressure, magnetic and low and audio frequency acoustic signals. This would include ultrasonic aspects for auxiliar tasks, for example the position determination of S.A. Navy ships while their signatures are being measured during checking the effectivity of their degaussing.

Numbered appendices

DOCUMENT 7

DATES	FIRM/INSTITUTION	PERSON	PURPOSE
28.11.69	Institut für Polymere, Marburg.	Prof. F.H. Müller	To discuss latest development in polymere research.
1.12 - 20.12	LEAVE		
22.12	Institut für Meereskunde, Kiel (travel to Hanau e.g. LH 126 or 409)	--	To see oceanographic equipment and discuss related research projects.
23.12.	Vacuumschmelze, Hanau (Travel to Stuttgart (e.g. LH 121 or 123)	Dr. Asmus	To discuss requirements for materials used for measuring weak magnetic signals.
24.12	Stuttgart Airport (Travel to Munich)	Mr. Dieter Egermann Mr. Fred Schröder Hewlett Packard GmbH 703 Böblingen Herrenberger Str.110 (07031) 6671	To see Hewlett Packard data system at airport.

DOCUMENT 8

Diese Anmeldung ist dreifach einzureichen

Ort, Datum
Köln, 10. November 1969

Südafrikanische Botschaft
Militärabteilung
5 Köln
Neumarkt 1

An den
Bundesminister der Verteidigung
S II 8 (Z2)
53 B O N N-Duisdorf
Hardthöhe

Betr.: Anmeldung von ausländischen Besuchern
Vorg. Der Bundesminister der Verteidigung, S II 8
Az.: 02 - 95 - 02 vom 1.3.67

Folgender Besucher wird angemeldet:

1) Heimatland des Besuchers: Deutschland
2) Name, Vorname: ENGELTER, Adolf G.
3) Dienstgrad, Rang, Titel: Dr.
4) Geburtstag und -ort: 18.8.1927 Marburg, Deutschland
5) Pass- oder Ausweis-Nr.: B 5961837
6) Geheimhaltungsgrad, zu dem der Besucher zugelassen ist: streng geheim
7) Entsendende Dienststelle oder Firma: Council for Scientific & Industrial Research PTA
8) Dienststellung in der Dienststelle oder Firma: Hauptforschungsbeamter
9) [redacted] oder Firmen, die besucht werden sollen: 1. Vacuumschmelze Dr. Asmus
2. Flughafen Stuttgart
10) Datum und Dauer der Besuche bei den einzelnen Stellen: 1. 22. Dezember 1969
2. 23. Dezember 1969
11) Angaben über Besuchszweck bei den einzelnen Stellen: 1. Besprechung über die Entwicklung in der Polymerisat-Forschung
2. Besichtigung u. Besprechung des Hewlett-Packard Datensystems auf dem Flugplatz
12) Unterbringung und Transport werden/sind geregelt durch: wie 13)
13) Der (die) Besuch(e) ist (sind) - noch nicht - [redacted] zwischen: Firmen, Flughafen und dem wissenschaftlichen Referat der Südafrikanischen Botschaft
und:

Unterschrift
Major
Militär- und Luftattaché

DOCUMENT 9

SCHEDA PERSONALE

CERTIFICATE OF SECURITY CLEARANCE

a) Cognome e nome:
Last name, first name, middle name:

ENGELTER, Adolf C. (Dr.)

b) Data di nascita:
Date of birth: 18.8.1927

c) Luogo di nascita:
Place of birth: Marburg, Germany

d) Nazionalità:
Nationality: German

e) Residenza di lavoro indirizzo attuale, Via e N, Città:
Residence, present address, street number, city:

c/o South African Council for Scientific and Industrial Research, P.O. Box 395, PRETORIA.

f) Nome e località Società/Impresa ove è impiegato:
Name and location of plant or agency where employed:

South African Council for Scientific and Industrial Research, Pretoria

g) Incarico:
Title or position: Dr. Phil., Senior Chief Research Officer

h) Certificato di sicurezza:
Security clearance: Top Secret

i) Rilasciato da:
Cleared by: Department of Military Intelligence

j) Data del certificato di sicurezza:
Date of security clearance: 28th August, 1969

k) Numero del documento d'identità o del passaporto:
Identity card or passport number: B.3961837

DOCUMENT 10

Bundesministerium der Verteidigung
FU L II 1 - Az.: 02-95-02

53 Bonn 1, den 7. Januar 1974
Postfach 161
Fernsprecher 2 01 61 - App.: 5491
Fernschreiber 0886 575, 0886 576

An den
Verteidigungsattaché
bei der Botschaft der Republik Südafrika
Herrn Brigadegeneral P.E.K. Bosman, SM
5 Köln 1
Heumarkt 1
nachrichtlich: b.n.
Referat FU S II 5 (Lw) 2 MA
RU IV 6
im Ministerium

Betr.: Statische Aufladung bei Hubschraubern
Bezug: Ihr Schreiben - Az.: Q/EME/14 vom 5. November 1973

Sehr verehrter Herr General!
In Beantwortung Ihrer Anfrage - hinsichtlich der statischen Aufladung bei Hubschraubern - beehre ich mich, Ihnen folgendes mitzuteilen:

Das Problem der statischen Aufladung von Hubschraubern ist in der Bundeswehr bekannt. Erstmalig wird bei dem Hubschrauber CH 53 ein aktives Gerät zur Beseitigung der elektrostatischen Aufladung verwandt. Dieses Gerät wird von der Firma Dyna Sciences Corp. hergestellt und geliefert. Die Anschrift der Firma lautet:

Town Ship Line Road Blue Bell P.A. 19422 USA.

Das Gerät soll die statische Aufladung des Hubschraubers messen und durch Abstrahlung von Ionen über Büschelantennen [illegible].

An dieser Stelle möchte ich noch auf eine interessante Veröffentlichung hinweisen. Vom 12. - 15. Dezember 1972 fand in Las Vegas ein Symposium statt. Die dabei gehaltenen Vorträge wurden unter dem Titel "1972 Lightning and static electricity conference" veröffentlicht, und können über AIR FORCE AVIONICS LABORATORY AIR FORCE SYSTEMS COMMAND-WRIGHT-PATTERSON, AIR FORCE BASE, OHIO bezogen werden. Da an dem oben genannten Symposium auch eine Teilnahme durch Angehörige des Ministeriums erfolgte, könnte, falls dies erwünscht ist, mit einem interessierten Herrn ein fachliches Gespräch über die anstehenden Probleme geführt werden.

Translation

Federal Ministry of Defence
Fü L II 1 - Ref. No. 02-95-02

53 Bonn, January 7th, 1974
P.O.B. 161
Tel.: 20161 Ext. 5491
Tlx.: 0 886 575, 0 886 576

To the
Military Attache of
the Embassy of the Republic
of South Africa
Brigadier P.E.K. Bosman, SM

5 Köln
Heumarkt 1

For the information of sections:
Fü S II 5 (LW) 2 NA
Rü IV 6
in the Ministry

Re: Static Charge on Helicopters
Re: Your letter - Ref. No. Q/EME/14 of Nov. 5th, 1973

Dear General !
In answer to your inquiry regarding static charge on helicopters, I have the honour to inform you:
The problem of static charge on helicopters is well-known in the Bundeswehr. For the first time an active device is being used on the CH 53-helicopter in order to remove the electrostatic charge. This device is manufactured and supplied by the Dyna Sciences Corp.
The address is:
Town Ship Line Road Blue Bell P.A., 19422 USA.
This device is supposed to measure the static charge on the helicopter and to compensate it through the beaming off of ions using bunched antennas.
From Dec. 12th to Dec. 15th a conference took place at Las Vegas. The lectures of this conference have been published entitled: "1972 Lightning and Static Electricity Conference" and can be obtained from AIR FORCE AVIONICS LABORATORY AIR FORCE SYSTEMS COMMAND PATTERSON, AIR FORCE BASE, OHIO. Since members of the Ministry have taken part in this above-mentioned conference, a talk on the present technical problems can be arranged with those interested on request.
Hoping to have been of some service to you, I remain,

yours very truly
by order
(Weber)

DOCUMENT 11

NATIONAL MECHANICAL ENGINEERING RESEARCH INSTITUTE

OF THE SOUTH AFRICAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

AERONAUTICS RESEARCH UNIT

Telephone 74-9011 Telegrams NAVERSEARCH

P.O. Box 395, PRETORIA

OUR FILE: MEA/T/99

YOUR FILE: W 3/3

10 January 1973

Miss I. Golowitsch,
Office of the Scientific Counsellor,
South African Embassy,
5 - KÖLN,
Heumarkt 1,
Germany.

Dear Miss Golowitsch,

OVERSEAS VISIT : M.E. BEYERS

Thank you for your letter referenced above. My overseas visit has been officially approved.

On the basis of your information on the DFVLR it is now clear to me that my main interest lies in a visit to the facilities in Göttingen, but that a visit to Porz could also be valuable.

Basically, I am interested in experimental investigations of the flight dynamics of rigid bodies, and in particular, techniques for free-flight testing in conventional wind tunnels and in shock or gun tunnels. The following topics are of special interest :

(1) models and launching equipment

(2) optical data acquisition systems

(3) data reduction techniques

At present we are conducting free-flight tests in the CSIR supersonic wind tunnel using a pneumatic launch gun. Data reduction is fully computerized.

I would therefore like to visit the DFVLR at Göttingen and if it can be conveniently accomplished, also at Porz. I will welcome your suggestions and will be in touch with you in connection with the other arrangements.

Yours sincerely,

M.E. BEYERS

MEB/JCC

DOCUMENT 15

REPUBLIEK VAN SUID-AFRIKA

REPUBLIC OF SOUTH AFRICA

Verw./Ref. No. 22/3/1 (5)

Tel. No. 48-6912 X

DEPARTEMENT VAN BUITELANDSE SAKE
DEPARTMENT OF FOREIGN AFFAIRS

Privaatsak/Private Bag X144
PRETORIA

-7 -2- 1974

VERTROULIK

Die Ambassadeur,
KEULEN.

Die Konsul-generaal,
MÜNCHEN.

BESOEK AAN WES-DUITSLAND :
MNRE. F.J. BELL, G.J. KRIGE - KTR, EN C. SMITH - S.A.LEER

Aangeheg is 'n afskrif van diensbrief no D14/2/1/14 gedateer 24 Januarie 1974 ontvang van die Krygstuigraad aangaande die besoek van bogenoemde persone.

Dit sal waardeer word indien u die hotelakkomodasie kan reel soos versoek en my so spoedig moontlik van die besonderhede in kennis stel.

SEKRETARIS VAN BUITELANDSE SAKE.

Translation

Secret 7.2.1974

The Ambassador
Cologne
The Consul General
Munich

Visit to West Germany:

Mssrs. F.J. Bell, G.J. Krige, Armaments Board, and C. Smith, South African Army

Attached is a copy of Service letter No. D 14/2/1/14 dated 24 January 1974 received from the Armaments Board regarding the visit of the above mentioned persons.

It will be appreciated if you could arrange the hotel accomodations as requested as speedily as possible.

Secretary of Foreign Affairs

DOCUMENT 17

NATIONAL INSTITUTE FOR DEFENCE RESEARCH

OF THE SOUTH AFRICAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

Telephone 74-6011 Telegrams NAVORSINST

Please address all correspondence to the Director

P.O. Box 395
PRETORIA

OUR FILE
U 5/4/13

YOUR FILE

S. A. S. L. O.
Cologne
RECEIVED
25 JUNI 1973
Action:
File: 3/3
Pend:

19 JUN 1973

Dr W.T. de Kock
Scientific Counsellor
c/o S.A. Embassy
Heumarkt 1
5 COLOGNE
W. Germany

Dear Sir,

VISIT TO SIEMENS - MÖNCHENGLADBACH

Messrs G. Lampen and W.C. Wikner from this Institute, will be attending Siemens factory at Mönchengladbach for instruction on the Ciné Theodolite which we shall shortly be installing at the Test Range, St Lucia.

I would be grateful if your office can book hotel accommodation for them in Mönchengladbach for the period July 15 to August 3. Mr Lampen will be accompanied by his wife, who is travelling privately, and so they will require one double room and one single room, with baths, in a reasonable hotel at moderate rates, if this is possible at such short notice.

Yours sincerely,

A.W.D. Chilton
for DIRECTOR

DOCUMENT 19

Vertraulich!

Herrn Dr. Bund

Essen, den 7. Mai 1976
Vö/Dp.

Vermerk

Betrifft: STEAG-Beteiligung an einer kommerziellen Anreicherungsanlage in Südafrika

Der Zusammenarbeitsvertrag zwischen UCOR und STEAG ist am 31.3.1976 beendet worden, nachdem es nicht zu einer Einigung über die Konditionen für eine STEAG-Beteiligung an der Anreicherungsanlage gekommen ist. Unsere wichtigsten Gründe für diese Entscheidung waren:

- Weigerung der südafrikanischen Seite, uns für unseren Anteil an der Anlage die Versorgung mit Natururan aus Südafrika zuzusichern. Nach südafrikanischen Vorstellungen sollte in Südafrika verfügbares Natururan bis zur vollen Auslastung des südafrikanischen Anteils allein auf die südafrikanischen Verpflichtungen zur Bereitstellung von Natururan angerechnet werden. Dies sollte auch für Natururan gelten, das STEAG selbst auf dem südafrikanischen Markt beschafft hätte.
- Für den Fall, daß STEAG die Verpflichtungen zur Bereitstellung des anteiligen Natururans nicht erfüllen kann, sollte nach den Vorstellungen der südafrikanischen Seite die Verpflichtung zur Zahlung einer Mindestrendite auf den STEAG-Eigenkapitalanteil entfallen.
- Wenn das Projekt durch politisch bedingte Lieferschwierigkeiten für Komponenten aus der Bundesrepublik gefährdet würde, sollte STEAG für den eigenen Beteiligungsanteil das volle wirtschaftliche Risiko selbst übernehmen.
- Erklärung von Staatssekretär Haunschild, daß keine Risikoabsicherung für die STEAG-Investitionen durch die Bundesregierung zu erwarten ist.

Translation

STEAG

Confidential

Dr. Bund

Essen, May 7th, 1976
VÖ/Dp

Memo

Re: STEAG participation in a commercial enrichment plant in South Africa

The contract of cooperation between UCOR and STEAG was terminated on March 31st, 1976, after an agreement about the conditions for participation by STEAG in the enrichment plant could not be reached. Our most important reasons for this decision were the following:

- Refusal by the South African side to guarantee to us sufficient natural uranium to meet our commitment for the plant. In the South African view, the natural uranium available in South Africa would have to be first allocated to meet the full requirement for UCOR's own commitment to provide natural uranium for the plant. This would apply also to such natural uranium as STEAG itself might be able to secure on the South African market.
- In the event that STEAG would not be able to fulfil its obligation to provide its share of natural uranium, the South Africans held that the obligation to pay a minimum yield on the capital subscribed by STEAG would be inapplicable.
- If the project was endangered due to politically occasioned supply difficulties for components from the Federal Republic, STEAG would have to bear the full economic risk for its share in the project.
- The declaration by Secretary of State Haunschild (Federal Ministry of Research and Technology, Bonn) that STEAG could expect no guarantees for its investment from the Federal Government.

Sd. Voelcker

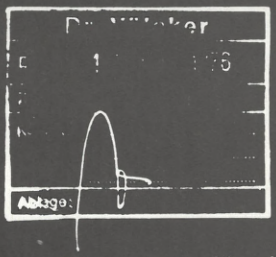
DOCUMENT 20

Uranium Enrichment Corporation
of South Africa Ltd.

P.O. Box 4587

P r e t o r i a

Republic of South Africa



Iw/Bl Iwand 3230 March 12, 1976

Ref.: Minizet-Project

Dear Sirs,

Pursuant to our proposal from 20th January 1975 and your letter from February 1975 we have acted as technical agent for UCOR!

Because of increase of wages since 1th July 1975 we have to charge higher hourly rates.

The now valid hourly rates are:

DM 78,90 for mechanical engineers
DM 90,90 for instrumentation engineers
DM 66,60 for draughtsmen.

Assuming that you will agree with the above mentioned hourly rates we beg you to settle the following amount:

113 hours for mechanical engineers x 78,90 DM/h	=	8.915,70 DM
Travelling expenses		31,00 DM
Total Sum.		8.946,70 DM

Please refer to our project-number 01.50.340.050.

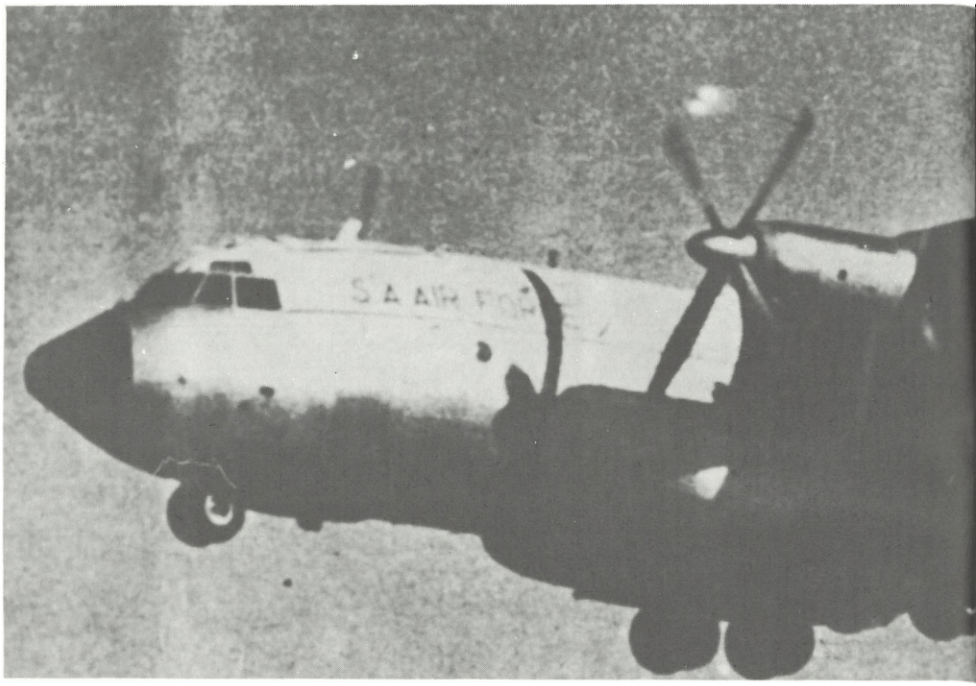
With kindest regards

S T E A G
Aktiengesellschaft

(H. Völcker) (H. Geppert)

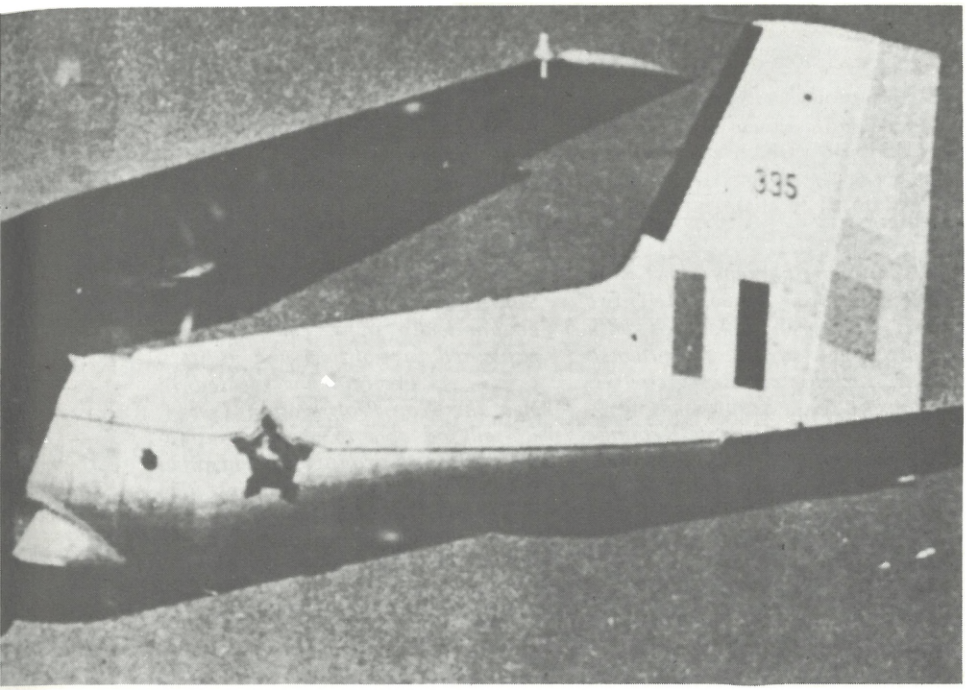
Encl.

DU/Herrn Dr. Völcker
Herrn Geppert

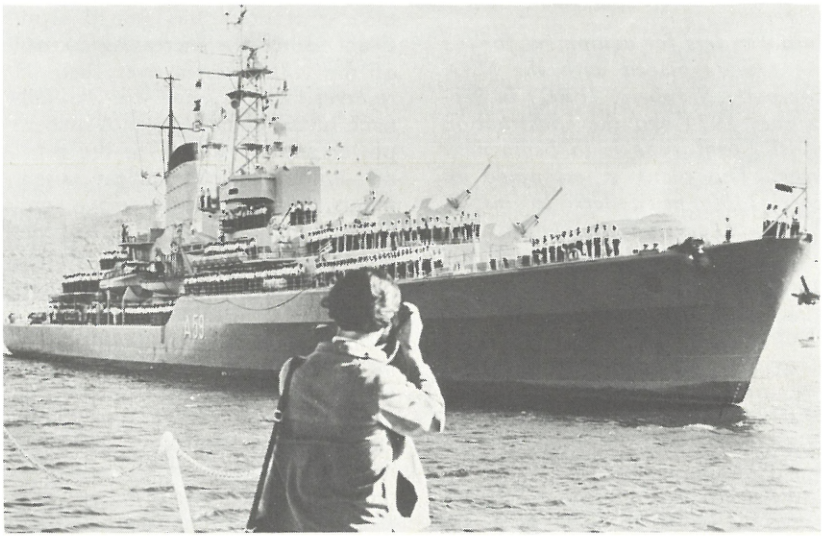


The Transall C-160 – aircraft jointly designed and manufactured by the FRG and France

137 heavy duty military trucks before shipping from Bremen to Durban, May 1975



The "Deutschland" at the Simonstown naval base, demonstrates the FRG's friendship for apartheid



Nuclear Conspiracy

Summary

A uranium enrichment plant is to be built in South Africa. The entire project has been developed with the assistance of the state-owned Society for Nuclear Research (Gesellschaft für Kernforschung – GFK) Karlsruhe, Federal Republic of Germany (FRG), the state controlled company STEAG in Essen (FRG) and with the agreement and active participation of the Federal Government in Bonn.

Though the Pretoria regime has claimed that it has developed a "unique" process for uranium enrichment, the process to be used is an adaptation of the jet-nozzle method developed in the FRG by Prof. Becker. The adaptation has been carried out in collaboration with scientists from the FRG and in conditions of great secrecy.

Initial orders for equipment for the plant were placed with the MAN company, Nürnberg, (FRG) in September 1974 and the construction of the prototype is to begin next year. The plant is estimated to cost 1400 m dollars to install. An ancilliary power station will have to be constructed at a cost of a further 800 m dollars in order to provide the energy for the process.

Financial assistance from the FRG for the construction of the plant is still under consideration, and may come directly through STEAG participation, or indirectly through Brazil, to whom the FRG has extended excessive credits ostensibly for the supply of two nuclear power stations.

A uranium enrichment plant in South Africa cannot be justified economically and can only be explained in political and military terms. As Pretoria has refused to sign the Non Proliferation Treaty, it will be able to use the enrichment plant to produce uncontrolled material for nuclear weapons. The threat of proliferation could be used to deter embargoes and sanctions, while the threat to use nuclear weapons could be used to extend apartheid's hegemony on the continent of Africa. The use of nuclear weapons cannot be precluded, as a desperate measure to preserve the apartheid state.

Uranium Ressources

Uranium as combustible matter for nuclear reactors has gained significance since the increasing control of the OPEC states over their oil reserves. Earlier, due to the fall-back in the construction of nuclear power stations and with the general limitation of nuclear armaments, the demand, price and prospecting for uranium had decreased (Australia, whose ore deposits are considered the richest in uranium content had closed down production completely). At present the economically useful uranium deposits in South Africa amount to 163 000 tons. They are of low concentration and were initially a by-product in gold-mining. Namibia is known to possess about 100 000 tons of natural

uranium over which South Africa seeks to maintain control. Together both countries contain 20 % of the world's economically useable uranium deposits. During the 1960s when world demand was low, South Africa stockpiled a considerable quantity of uranium and even in 1973 South Africa's income from uranium exports amounted to only 53 million dollars (1), which, on the basis of world market prices is equivalent to 2 600 tons of uranium.

Development of South Africa's Nuclear Program

The South African Atomic Energy Board was established in 1949 and the country's first uranium plant was opened in 1952. South Africa's atomic and nuclear programs received considerable direct assistance from the United States. Safari I, South Africa's first reactor at Pelindaba in the Transvaal was built under the United States "Atoms for Peace" programme and installed at a cost of US-Dollar 11 million. The Atomic Energy Commissions's laboratory at Oak Ridge trained most of the South African engineers and nuclear scientists.

Local research and development had been spurred by the establishment in 1957 of a Nuclear Physics Research Unit at the University of Witwatersrand in Johannesburg.
By 1965, Safari I had gone 'critical' and two years later Pelindaba Zero (Safari 2), South Africa's second reactor, was opened. In that same year, legislation was enacted prohibiting the publication of information relating to the prospecting, production, and pricing of uranium (2).

By then the Federal Republic of Germany had become involved in South Africa's nuclear program.
The South African Digest published by the Department of Information confirmed the close cooperation and that "South Africa's nuclear scientists and technologists have been and are being trained at research establishments in West Germany, while others frequently pay visits to such institutions when they come overseas" (3). However, by the end of the following year, 1968, South Africa was anxious to conceal both the extent and nature of the FRG collaboration, for as the regime's Ambassador in Bonn warned his successor: "the less said in public at this stage about this aspect of our relations with the Federal Republic, the more success we shall be able to achieve behind the scenes "(see p 56). The "success" sought is now revealed: close collaboration with the FRG in research and development of uranium enrichment, and FRG assistance in the establishment in South Africa of an uranium enrichment plant – a development which significantly increases the apartheid regime's nuclear weapons capacity, by giving its access to concentrated fission material which is subject to no international control.
Natural uranium obtained after processing in the extraction plants consists of 99,3% of the heavy isotope U 238 and only 0,7% of the lighter U 235 which is useable for bombs and power-producing nuclear reactors. For the operation of nuclear reactors (i.e. the economic use of uranium) the concentration of U 235 must be increased to 3%, for weapons it

TEL. ADD. SAUSG BERLIN
TELEPHONE * 23-60 71

SOUTH AFRICAN EMBASSY

REF. 6/1/1

1 HELMARST
5 COLOGNE

AIRMAIL

19th December, 1968

Dear Don,

I wish to thank you for your letter 4/2/2/1 of 5th December, enclosing copies of your Letters of Credence and copies of the speech. The speech has now been translated in the Embassy and I enclose herewith a copy of the translation. Please let me know whether you find the translation in order.

Regarding the speech, I should be grateful if you would permit me to comment on the inclusion in the speech of a reference to nuclear energy and the production of uranium - vide the penultimate paragraph. As you know, the East Germans have for many years accused the Federal Republic and South Africa of close co-operation in this particular field and of secretly producing atomic weapons. I fear that the reference to nuclear energy - even though you specifically mention the peaceful uses of such energy - and South Africa as a major uranium producer, and the fact that you specifically express the hope, as South Africa's Governor on the IAEA, to be able to give special attention to this aspect of the relations between us, could be seized upon by our enemies as further proof of the collaboration of which we have been accused for so long. This we should avoid. Moreover, from the German side it may prove difficult to prepare a proper reply in this connexion for inclusion in the Federal President's answer at the presentation of credentials ceremony, especially as both your speech and the President's reply will be published in the official bulletin which enjoys wide circulation. I feel that the less said in public at this stage about this aspect of our relations with the Federal Republic, the more success we shall be able to achieve behind the scenes. It is therefore strongly recommended for your consideration that the particular paragraph in the speech be omitted.

Mr. D.B. Sole,
Department of Forein Affairs,
Pretoria.

I should be grateful to receive your views on the above comments, before handing a copy of the speech and translation to Dr. von Rhamm in Protocol.

Yours sincerely,

Hennie.

DOCUMENT 22

must reach 90%. Before enrichment, uranium dioxide must be chemically transformed into gaseous uranium hexafluoride. The enrichment of the isotope U 235 is a technically difficult and expensive process. The degree of enrichment required however, – whether for use in nuclear reactors or for weapons–does not necessarily require new techiques, since the enrichment process can be repeated until desired concentration is reached. – The combustion of the 3%-enriched U 235 used in nuclear reactors produces plutonium which is also suitable for the production of atomic bombs.

Uranium Enrichment Project

On September 11th 1974 the state-owned Energy Supply Commission (ESCOM) placed an order worth S 184 m with the West German firm MAN in Nürnberg for compressors to be used in the construction of an uranium enrichment plant in South Africa. The plant will be operated on the basis of the jet-nozzle system developed in the Federal Republic of Germany. Within the next two months, the STEAG company in Essen, a fuel energy concern controlled by the Federal Government, is expected to take a decision on whether it will participate in the South African project financially, in addition to its involvement – in providing the technical expertise for the construction and operation.

The plant, the construction of which is to commence in 1976, will be able to enrich uranium for both civil (11) and military purposes. South Africa is not a signatory of the International Nuclear Non-Proliferation Treaty, while the Federal Republic of Germany has signed the Treaty. According to South African statements, the plant is to produce enriched uranium for export and for the operation of domestic power-stations, and will also enable South Africa to produce her own nuclear weapons (12). STEAG has sought to justify its participation in the enrichment plant in South Africa on the grounds that thereby the increasing needs of German power-stations could be met (13) independently of the current suppliers: the USA and USSR. However the Non-Proliferation Treaty prohibits the acquisition of enriched uranium from any non-signatory state such as South-Africa (14). Thus the FRG is clearly intending to violate its treaty obligations. Despite claims by South African politicians and scientists at the primary stage of the project that their uranium enrichment method was "unique in its concept" and "unequalled in the history of our country" (15), the evidence indicates that far from being unique the method to be used by South Africa is an adaptation of the West German jet-nozzle system. In addition to this system there are two other known methods of uranium enrichment to be used commercially: gaseous diffusion and the gas centrifuge process.

Gaseous diffusion is at present the only method used for large scale production. It is used by the USSR, USA, Great Britain, France, and China. Only the USSR and USA produce sufficient enriched uranium over and above their own military "requirements" to

supply nuclear power stations at home and abroad.

The gas centrifuge process is believed to be the most economical, and Britain, Holland and the FRG have combined to develop the process further. A plant has not yet been established.

The jet nozzle system: The system was invented by Prof. Becker of the Society for Nuclear Research (GFK), Karlsruhe. Professor Becker worked in South Africa in 1970. Dr. W.L. Grant, the South African specialist on enrichment, has published work on this system and is known to have visited Germany at twice (1969 & 1975). South African scientists including Dr. H.J. du T. van der Linde, Dr. W.E. Stumpf, R.J. Schmitt and Wilmot of the Atomic Energy Board received specialist training at Karlsruhe in 69/70 (s. p60). Training of scientists continued thereafter and at least seven South African scientists visited the Nuclear Research Centre (Kernforschungszentrum-KFZ), a GFK subsidiary in 1973/74. From the outset, officials in the FRG have been involved in the project to establish a uranium enrichment plant in South Africa. The President of the AEB, Dr. Roux, visited the Federal Republic on at least five occasions between 1972 and 1975.

The South African Minister of Mines, Koornhof, discussed the matter with members of the government in Bonn and with the chairman of STEAG, Dr. Bund, in 1975. Prime Minister Stoltenberg (CDU) of Schleswig-Holstein who is former Federal Minister of Science, discussed the project in South Africa at the Nuclear Centre Pelindaba in 1973 and 1974, as did Mr. Haunschild, Secretary of State of the Federal Ministry of Research and Technology (1972), and Mr. Rohwedder, Secretary of State in the Federal Ministry of Economic Affairs (1975). The inventor of the jet-nozzle-system, Professor Becker of Karlsruhe (1970, 1974), as well as the STEAG businessmen Dr. Bund, Dr. Schulte, Mr. Geppert and Dr. Völcker have repeatedly visited Pelindaba in furtherance of the project.

Vorster has said, that South Africa possessed one of the three uranium enrichment methods existing in the world (16). While both Roux and Koornhof have explained that it was neither the gaseous diffusion nor the gas centrifuge system. (17,18,19)

Confirmation that the "unique" South African system is an adaptation of the jet-nozzle system was provided by Dr. Roux's admission in 1975 that the South African process was developed from the vortex tube (20), which is the basis of the jet-nozzle system.

In reply to Parliamentary questions and in letters to the FRG Anti-Apartheid Movement, the Federal Government has denied that either the Nuclear Research Centre in Karlsruhe or the Federal Government is participating in the deal between STEAG and the Uranium Enrichment Corporation of South Africa – UCOR (21, 22, 23). However, the facts give the lie to the FRG denials:

a) The export of any material and any technology relating to enrichment of uranium must have government approval in terms of the Foreign Trade Act of the FRG, § 5, II No. 0118.

b) The Federal Government has effective control of STEAG, 51% of

whose shares are owned by Ruhrkohle AG. The Federal Government has a 40% shareholding in Ruhrkohle and further exercises control over its operations through the substantial subsidies it provides to the company.
c) The Federal Government owns 90% of the share capital of the Society for Nuclear Research (GFK) in Karlsruhe and the Secretary of State of the Federal Ministry of Research and Technology, Hans-Hilger Haunschild, is chairman of the GFK supervisory Board.
d) An inter-ministerial meeting attended by the secretaries of state of the Federal Ministries of Education and Science, Economic Affairs, Foreign Affairs and the Office of the Chancellor gave its unanimous support to the co-operation between STEAG and UCOR and the use of GFK technology. This meeting was held on September 27, 1973 (p 28).

e) Letters on the political aspects were exchanged between Vorster and Chancellor Brandt (see p 63). However, the GFK has refused to divulge the names and dates when scientists from Karlsruhe were working at or visiting Pelindaba, and Pelindaba scientists visited Karlsruhe. Also, specific enquiries regarding the visits of Dr. Roux, Dr. Grant and Prof. Becker were not answered by the GFK (24). In 1970 the then Minister of Mines, Mr. de Wet, pointed out that almost as remarkable as the technology of the new enrichment method was "the fact that the board succeeded to keep the project secret" (25). According to Dr. Roux, Dr. Grant had begun work on the enrichment project without the official knowledge of the Atomic Energy Board of South Africa (26).
The secrecy surrounding the enrichment project was strengthened in 1971 by amendments to the Atomic Energy Act. In the Federal Republic, even as late as 1973, not all members of the Federal Cabinet had been informed about the commitment to South Africa. When, for example, the Federal Cabinet decided in August 1973 on the initiative of the then Minister of Economic Co-operation, Dr. Eppler, not to grant any government export credits for the project and to let it die in that way, the above mentioned meeting of secretaries of state supporting the project took place without the knowledge of members of government.
Secretary of State Haunschild of the Federal Ministry of Research and Technology supported the enrichment project. Dr. Prentzsch and Dr. Rembser of the same ministry were similarly in favour of cooperation with South Africa. In Karlsruhe, at the research centre, Prof. Becker and the manager, Dr. Greifeld, were in favour of collaboration in the development of the plant in South Africa. At STEAG in Essen, those who were fully informed on the project include: Drs. Bund, Voelcker, Schulte and Messrs. Schiller and Geppert.

The Nuclear Conspiracy

In 1956 the Society for Nuclear Research (GFK), Karlsruhe, FRG, was founded (27). In 1957 the Atomic Energy Board (AEB) of South Africa was established as a separate body (28). During the same year the president of AEB,

DOCUMENT 23

TELEX 44-0253 Pr O/PJW

The Head: Institute for Nuclear Technology,
Technische Hochschule Karlsruhe,
Reaktorstation, Leopoldshafen,
KARLSRUHE
Federal Republic of Germany

13 FEB

Dear Sir,

STUDY : MR. P.J. WILMOT

In the latter half of this year, Mr. P.J. Wilmot, a senior scientist of the Board's Instrumentation Division, will be seconded for a minimum period of approximately 2 years to the Gesellschaft für Kernforschung in Karlsruhe, in order to gain further experience in the field of electronics, while at the same time studying for a doctorate in Electrical Engineering at the Technische Hochschule.

Mr. Wilmot obtained his B.Sc. in Electrical Engineering [cum laude] at the University of Pretoria in 1967 with Electronics, Control Theory, Computer Theory, Machines and Telecommunication as major subjects. Since 1967 he has been studying on a part-time basis for the M.Sc. degree in Electrical Engineering his main subjects being Network Synthesis, Control Systems, Computer Techniques and Advanced Engineering Mathematics. Within the next few weeks he hopes to obtain his M.Sc. degree on a thesis entitled "Analog-to-Digital Conversion using the Ramp Method".

Since he joined the Board's Instrumentation Division in 1967, his work has covered reactor experiment instrumentation including tie-in to reactor control system, interfacing between existing and newly acquired apparatus, and development work on specialised electronic modules and general electronic design.

At present he is working on the design and installation of computer-based data acquisition and a reduction system for nuclear physics experiments. His main interests lie in the fields of logic design and computer application to instrumentation and control, and he wishes to pursue his studies towards a doctor's degree on a subject related to the above.

Dr. Greifeld has agreed to Mr. Wilmot's joining the staff of the Karlsruhe Research Centre in the second half of this year and has suggested that - in view of Mr. Wilmot's experience and scientific interests - a secondment to the Institut für Reaktorbauelemente would be particularly appropriate. In this connection Dr. Greifeld has in fact written to us as follows:

> "Eine der gegenwärtig zur Bearbeitung anstehenden Aufgaben dieses Institutes beinhaltet die Simulation eines Reaktorkreislaufes. Zu diesem Zweck wurde eine Anlage geschaffen, bei der die nuklearen Brennelemente durch elektrisch beheizte Brennstäbe ersetzt sind. Die übrigen Kreislaufkomponenten entsprechen denjenigen eines Kernreaktors. Um das dynamische Verhalten des Simulationskreislaufes demjenigen einer Reaktoranlage anzupassen, ist vorgesehen, einen Analogrechner einzusetzen. Die Kopplung von Rechenanlage und Simulationskreislauf dürfte ein Problem sein, für dessen Lösung Kenntnisse auf dem Gebiet Elektronik, Reaktorregelung, Reaktorinstrumentierung und des Einsatzes von Rechnern, wie sie Herr Wilmot nach seinem bisherigen Werdegang besitzt, von grossem Vorteil sind. Diese Problemstellung dürfte daher als Thema einer Promotion geeignet sein".

In view of the above, we would be most grateful if you could advise us of the proper procedure to have Mr. Wilmot registered at the Technische Hochschule so that he may commence his studies in the next academic year, and if you could let us know which of the University's professors would be prepared to act as promotor for Mr. Wilmot's thesis.

If at all possible, we would be glad if you could also let us know if his studies would necessitate regular attendance of lectures at the University, or if the work for his doctorate would be mainly covered by practical research work at the Karlsruhe Nuclear Research Centre.

Yours faithfully,

D. E. B. HUGO

J.P.D. Hugo
DEPUTY DIRECTOR GENERAL

GKO/IB/11/2/1970

Dr. Roux, went on a six-months scientific information tour abroad (26); 1959 saw the beginning of the development of the jet-nozzle system for enriching uranium in Karlsruhe (29). According to Dr. Roux, it was in the same year that he decided that uranium enrichment within South Africa was a necessity (26). A year later, Dr. Grant, deputy director of AEB, at the request of Dr. Roux but without the knowledge of AEB, began the development of an enrichment method in strictest secrecy (26). In 1968 Dr. Roux considered it technically possible to erect a trial plant (26). At the end of that year, a three-men expert group under the chairmanship of the president of the state-owned industrial holding company IDC discussed the possibilities and feasibility of the enrichment plant and recommended that funds be made available for a trial plant (26).
In 1969, Donald B. Sole, formerly a representative of the regime on the AEB, and a former president of the International Atomic Energy Organization in Vienna, became Pretoria's new ambassador to the FRG. The scientists Linde, Stumpf, Schmitt and Wilmot of the AEB subsequently underwent special training at the Nuclear Research Centre (KFZ - a subsidiary of the GFK) in Karlsruhe with respect to the jet-nozzle system. Dr. Grant paid a two-day visit to the Karlsruhe centre in November 1969. But at the nuclear research centre in Pelindaba, decisions had not yet been taken. For at the end of January 1970, the then Federal Minister of Science in Bonn, Professor Leussink, discussed with Sole the possibility of South Africa's participation in the joint German-British-Dutch gas centrifuge enrichment project. In March 1970, the Society for Nuclear Research (GFK) in Karlsruhe concluded an agreement with the STEAG company in Essen on the further joint development of the jet-nozzle system and assigned the exclusive world rights for industrial utilization of the process to STEAG (30,13). Four months later, Vorster told his Parliament that South Africa possessed a unique and new method for enriching uranium which was cheaper than any other method, and wished to let other countries participate in exploring the method. A trial plant was to be constructed costing 112 m US-dollars (18). He went on to say that the enrichment plant was important for South Africa, since the sale of enriched uranium yielded larger profits than the sale of uranium ore, and a local plant would also guarantee the availability for South Africa of enriched uranium, the latter to be used in three nuclear power-generating plants designed for the desalienation of 450 million litres sea-water per day (19). At the end of 1970, the Wall Street Journal reported that Prof. Becker of the nuclear centre, Karlsruhe, was working in South Africa (31). The German politician Franz Josef Strauss (CSU) spent the month of April 1971 in South Africa.

At the end of his trip he told journalists, that a CDU/CSU government in the Federal Republic would supply weapons to South Africa (32). A few days earlier Dr. Roux of AEB had made a statement that with the new

253 sa

DOCUMENT 24

857826 steha

dr. a.j.a. roux
president atomic energy board
pretoria
republic of south africa

dear dr. roux,

with reference to article 14 of the memorandum of understanding between ucor/aeb and steag we have the pleasure to inform you as follows:

1. steag board of management has agreed to the memorandum.

2. state secretary haunschild was informed by dr. bund about the memorandum and has agreed to proceed as planned.

3. gfk has given approval to the memorandum in principle. gfk has recommended an aquivalent wording with respect to point 2 a and 2 b in the final agreement.

4. with respect to the political situation we refer to the recent letter exchange between prime minister vorster and chancellor brandt.

5. we kindly ask you to proceed in this matter as agreed during our meeting.

best regards,
steag - dr. v?oelcker

44-0253 s

857826 steha d

enrichment method South Africa was in a position to produce nuclear weapons (12).
In 1971/72 the cooperation between the FRG and SA became more concrete. At the beginning of 1972, Dr. Bund, Chairman of STEAG, travelled to South Africa. On April 18th/19th, 1972, the following visitors were at the Pelindaba nuclear centre for discussions with Dr. Roux: Secretary of State Haunschild; Dr. Frenzel, senior officer for Technological Research and Development; Dr. Martin Nettesheimer, senior officer for Bilateral Relations in the sub-unit for International Cooperation; and Dr. Rainer Gerold, the personal assistent to Mr. Haunschild – all of the Federal Ministry of Education and Science, Bonn. Following this visit Mr. Haunschild sent a confidential memorandum to Dr. Roux concerning measures to keep the project and the participation of German firms in the enrichment effort secret. On January 11th-13th, 1973, Dr. Bund of STEAG was again in Pelindaba to discuss the project with Dr. Roux. The latter visited Secretary of State Haunschild in Bonn on March 12th, 1973, also called on STEAG in Essen from March 13th-15th and spent part of March 16th with an unknown host in Munich (see p 72).

In early May 1973, the STEAG directors Voelcker and Geppert flew to Pelindaba for talks. Afterwards the South African Minister of Mines, Koornhof, announced that funds would be made available for the construction of a unit of a jet-nozzle cascade. The entire plant, for which the unit served as a basis, would be completed in the early eighties and would cost about 1.320 m US-dollars (33).
On June 13th, 1973, STEAG sent a cable to Dr. Roux to the effect that STEAG, Mr. Haunschild of the ministry, and the Society for Nuclear Research in Karlsruhe agreed with the joint memorandum on cooperation (p. 28).

At the end of August 1973, the Federal Government in Bonn decided not to involve itself directly in the financing of the enrichment plant in South Africa through the granting of subsidized export credits. The many protests against government financing of the Cabora Bassa project in Mozambique and increasing awareness by the public about the West German arms supplies for Lisbon's colonial wars in Africa probably played a role in this decision. After Bonn's decision, Newby-Fraser of AEB paid a visit to the Federal Ministry of Education and Science on September 11th, 1973. On the same day, as well as on the 12th, Dr. Roux of AEB had talks with STEAG in Essen. September 13th/14th he spent with an unknown host in Munich. On September 27th, 1973, the above-mentioned interministerial meeting of secretaries of state took place, at which it was decided to maintain the established cooperation between UCOR and STEAG and the use of the technology of the Society for Nuclear Research in Karlsruhe.
Other financing sources had to be negotiated, as South Africa was not in a position to finance the

necessary installations on her own. In October 1973, the apartheid information service announced that the enrichment system would be cheaper than had been assumed hitherto and would be only half as expensive as other comparable methods. When, following this announcment, no one came forward to finance the project, STEAG was requested to undertake a fresh feasibility study on "both" systems (13). (In addition to the uranium project, South Africa envisages for the next ten years industrial investments to the tune of 12.400 m US-dollars (37) and therefore needs foreign financing).
Dr. Roux announced in June 1974 that in addition to STEAG other overseas interests were involved in the project. This seems to be reference to cooperation with Brazil. In December 1974, negotiations took place with Iran for the financing of the plant in South Africa and the possible purchase of enriched uranium.

On September 11th, 1974, ESCOM, S.A. placed an order worth 184m US-dollars with MAN, Nürnberg, for compressors designed for the acceleration of the gaseous uranium mixture. In February 1975, Dr. Grant of AEB visited STEAG in Essen, and Dr. Roux saw Secretary of State Rohwedder of the Federal Ministry of Economic Affairs. Dr. Roux returned to Germany in March to call on STEAG. On April 5th, 1975, the prototype for the enrichment process at Pelindaba began operating (36). In mid-april, Secretary of State Rohwedder visited Pelindaba and had talks there with the vice-president of AEB, Dr. de Villiers, the vice-chairman of UCOR, Dr. Loubser, and the Minister of Mines, Dr. Koornhof. Dr. Koornhof in turn paid a visit to the FRG during April and met Mr. Haunschild of the Federal Ministry of Research and Technology as well as Dr. Bund of STEAG and the Federal Minister of Economic Affairs, Dr. Friderichs. Koornhof and Dr. Bund decided to organize a ten-day tour of 20 journalists from the FRG to South Africa for September 1975 in order to help sell apartheid and the project to the German public.
At the European conference on the peaceful use of nuclear energy in Paris in April 1975, Messrs. Roux and Grant of the Atomic Energy Board of South Africa lifted the veil of secrecy. The information they proffered on "their" enrichment method proved that it was based on the German jet-nozzle system (4, 6). A press release issued by them on April 23rd attempted to weaken this impression.
On May 2nd, 1975, the Scientific Counsellor at the Apartheid Embassy in Bonn, Dr. Hellwig, discussed technical aspects with Mr. Rammenzweig, the specialist for jet-nozzle coating methods of the Institute for Aerodynamics in Göttingen, FRG. On May 15th, 1975, the newspaper "Handelsblatt" (trade news) carried an item that the study undertaken by STEAG on uranium enrichment had been concluded with positive results and participation of STEAG in the enrichment plant in South Africa was now being studied. On July 31st, 1975, the CSU politician Franz Josef Strauss had talks in South Africa with the Minister of Defence,

DOCUMENT 25

Bundesministerium
für Bildung und Wissenschaft
Der Staatssekretär

53 BONN 9, den 12. Juli 1972
Heussallee 2-10 (Hochhaus)
Fernruf: [illegible]

Herrn
Dr. A. J. A. Roux
Präsident des
Atomic Energy Board
Private Bag 256
P r e t o r i a
Südafrika

Vertraulich

Sehr geehrter Herr Roux!

In unserem Gespräch in Skukuza hatte ich Ihnen zugesagt, nach meiner Rückkehr in die Bundesrepublik Deutschland prüfen zu lassen, wie sichergestellt werden kann, daß Mitarbeiter einer Industriefirma, die in der Explorationsphase - also vor dem Beschluß über eine Zusammenarbeit - Kenntnis von Einzelheiten des Anreicherungsverfahrens erhalten, diese Informationen geheim halten.

Das Ergebnis der Prüfung liegt mir jetzt vor. Danach ist die Rechtslage wie folgt, soweit es den strafrechtlichen Geheimschutz betrifft:

1. Materieller Geheimschutz

Der Schutz der fraglichen Kenntnisse als deutsches Staatsgeheimnis im Sinne der §§ 94, 95, 97 StGB setzt voraus (kumulativ),

- Die Kenntnisse sind deutschen Regierungsstellen anvertraut.
- Es besteht eine irgendwie geartete Vereinbarung über Geheimbehandlung zwischen der Bundesregierung und der Regierung Südafrikas.

- Die Kenntnisse sind materiell geheimhaltungsbedürftig, d. h., daß ihre Preisgabe einen schweren Nachteil für die äußere Sicherheit der Bundesrepublik Deutschland mit sich bringen könnte.
- Die Kenntnisse werden von einer deutschen amtlichen Stelle oder auf deren Veranlassung geheimgehalten (faktische Geheimhaltung).

2. Vorbeugende technische Geheimhaltung

Hier handelt es sich um die formelle Behandlung als geheime Kenntnisse ohne Beurteilung des Geheimniswertes. Insoweit müßte zunächst von Regierungsseite die bindende Zusage gegeben werden, die geltenden Verfahren der Geheimhaltung anzuwenden oder den Experten, der die Kenntnisse zur Prüfung erhält, zu verpflichten, diese nach den vorgesehenen Verfahren zu behandeln (was voraussetzt, daß der Empfänger eine solche Verpflichtung eingeht).

Wer unbefugt so sekretierte Unterlagen ganz oder zum Teil einem anderen mitteilt oder öffentlich bekannt macht und dadurch wichtige öffentliche Interessen gefährdet, macht sich ohne Rücksicht auf die materielle Qualität der Kenntnisse als deutsches Staatsgeheimnis nach Maßgabe des § 353 c) Strafgesetzbuch strafbar. Die Strafverfolgung setzt eine Ermächtigung der Bundesregierung voraus.

Ich hoffe, daß diese kurze Darstellung der Sach- und Rechtslage Ihre Fragen in ausreichender Weise beantwortet.

Bei unserem Gespräch waren wir uns einig, daß eine Vereinbarung oder Absprache zwischen unseren Ländern über die Geheimhaltung des Verfahrens zur Zeit nicht opportun wäre. Ich möchte aber noch einmal betonen, daß private deutsche Industriegruppen rechtlich völlig frei sind bei der Entscheidung über Beteiligungen an ausländischen Verfahren einschließlich von Absprachen über die vertrauliche Behandlung dabei erlangter Informationen, wie sie auch im umgekehrten Fall über nichtgeheime Kenntnisse frei verfügen können.

Die Firma STEAG habe ich von dieser Stellungnahme unterrichtet.

Mit freundlichen Grüßen

(Haunschild)

Translation

Essen, Feb. 27th, 1973
Vö/Gl

Visit of Dr. Roux

13.3.1973	*Pick-up of Dr. Roux and transfer to GK West*
16:30 h	*Arrival of Dr. Roux, Dr. Bund, Dr. Völcker, Mr. Geppert at GK West*
	Guided tour through GK West
18:00 h	*Dinner at "Haus Wohnung", Voerde, Dr. Roux, State Secretary Haunschild and wife, Dr. Nettesheim and wife, Dr. Bund and wife, Dr. Schadtberg and wife, Dr. Völcker and wife, Mr. Geppert*
	Overnight stay of Dr. Roux at the Kaiserhof, Essen
14.3.1973	
9:45 h	*Arrival of ambassador Sole, central office*
10:00 h	*Departure from the central office to Lünen power plant Sole, Dr. Roux, Dr. Völker, Geppert*
	Inspection of the KDV-unit
about 13:30 h	*Lunch at the Kreutzkamp hotel near Lünen*
16:00 h to about 18:00 h	*Talks at Dr. Bund's*
19:00 h	*Aperitif at Mr. and Mrs. Bund's*
20:00 h	*Dinner at the Ange d'or, Kettwig Sole, Dr. Roux, Dr. Bund, Dr. Völcker, Geppert*
	Overnight stay of Dr. Roux at the Kaiserhof, Essen
15.3.1973	
10:30 h	*Departure in private plane (Dr. Roux, Dr. Bund and wife, Dr. Völcker and wife, Geppert), Mülheim – Munich (Cessna 421)*
about 12:00 h	*Landing in Munich*
	Ride to Sheraton Hotel, Arabellastrasse
	(the Hotel Continental and all other known hotels have been booked in advance due to the BAUMA exposition).
13:00 h	*Lunch at the restaurant "Die Mühle", Sheraton hotel*
	Talks on cooperation
18:00 h	*Dinner at the "Altbayern-Stube", Sheraton hotel*
19:30 to about 22:00	*Attendance of "The Barber of Sevilla" at the Gärtner Theater.*
	Overnight stay at the Sheraton hotel
16.3.1973	
before noon	*Stay at Munich*
11:00 h	*Ride to Rottach-Egern*
12:00 h	*Lunch at the Hotel Bachmair by the lake at Rottach-Egern*
about 13:30 h	*Departure of Dr. Bund and wife to Munich*
15:00 h	*Take-off of Dr. Bund and wife*
	Munich – Mülheim
	Dr. Roux, Dr. Völcker and wife, Geppert spend the evening at Munich (Schwabing?)
	Overnight stay of Dr. Roux, Dr. Völcker and wife, Geppert at the Sheraton Hotel
17.3.1973	
11:15 h	*Take-off of Dr. Roux*
	Munich – Frankfurt (LH 751)

Mr. Botha. During the week of August 2nd-9th he met the Minister of Mines, Mr. Koornhof, as an official guest on a farm belonging to the South African regime. On August 1st, 1975, the vice-president of UCOR, Dr. Loubser, called on the company Internationale Nickel Deutschland in Düsseldorf, FRG, and discussed the order placed with them concerning the homogeneous coating of the jet-nozzles through electroforming. Shortly before that it became known that one of the OPEC countries provided a credit of 1.000 m US-dollars to the Ruhrkohle AG, the mother company of STEAG. It seems likely that these funds, which could well originate from the Shah of Iran, as well as the generous credits made available for the German nuclear reactors for Brazil are destined for the STEAG-UCOR project in South Africa.

South Africa's Desire for Nuclear Weapons

The Pretoria regime's statements on the purpose and ultimate aim of its nuclear programme have been contradictory. Even denials of statements on the military aspects of the nuclear programme have been equivocal and have carefully avoided any categoric renunciation of nuclear weapons.

While Pretoria has emphasized that the enrichment plant is planned for "only peaceful purposes", it has never spoken of "only civil purpose".

South Africa is not a signatory to the Non Proliferation Treaty and has opposed international inspection of her mines or processing plants.

South African claims notwithstanding, the massive investments necessary for the nuclear programme cannot be justified economically, either on the basis of exporting enriched uranium or meeting South Africa's energy requirements.

Uranium Exports

Enriched uranium is sold by the government of USA and USSR at subsidized price of 38.50 US-dollars per kilogramme at the moment. The cost of a gaseous diffusion plant capable of enriching 9.000 tons of natural uranium per annum is approximately 1.500 m US-dollars. As the process uses 2.330 KW for enriching one kilo of uranium, special power stations have to be constructed at an estimated cost of a further 1.000 m US-dollars.

The "European Club" of Britain, Holland and the FRG has not been able to establish an economically viable plant based on the gas centrifuge process. However, it is estimated that such a plant for enriching 9.000 tons of natural uranium per annum would cost 2.000 m US-dollars to construct. The consumption of electricity in this process in only 230 KW per kilo and hence a further 100 m US-dollars investment in power station is required. The estimated price of the enriched uranium produced by this method is US-dollar 53 per kilo. A jet-nozzle plant is estimated to cost 2.500 m US-dollars. It has a higher power requirement at 3.800 KW per kilo, necessitating additional investments in power stations of 1.800 m US-dollars. South Africa has announced a sales price of US-dollars 74 per kilo.

South Africa's export of enriched uranium could only be profitable if South Africa operated a virtual black market supplying enriched uranium to states which were not prepared to accept the safeguards of the Non Proliferation Treaty.

Nuclear Power Stations

The construction of nuclear power stations costs four times as much as coal-fed power stations. South African coal is cheap at US-dollars 3 per ton pithead price compared to US-dollar 9 in the US and US-dollars 60 in the FRG. Therefore the use of nuclear power stations in South Africa for generating electricity cannot be justified on economic grounds. South Africa has ample coal resources for 1.000 years as was explained by the economic counsellor of the Embassy at Cologne in an advertisement in the West German newspaper "Die Welt" on April 14th, 1971. But even here obfuscation is practised. In the same newspaper the AEB justified the enrichment plant with fears that there was only coal for 60 years. No less a person than the chairman of the AEB said in August 1973, that South Africa has no nuclear power programme (38).

The nuclear programme can only be justified in terms of political and military considerations. With control of nuclear material the Pretoria regime could consolidate its military links with the Western powers, while at the same time by operating outside international controls, it could buy 'friends' by providing nuclear materials and technology to non-signatory states. The development of nuclear weapons would be used to demonstrate to supporters in the country that the regime could stand alone in defiance of world opinion and internal opposition. The aggressive posture in Africa would be enhanced, and having already threatened to "bloody the nose" of 'interfering' African Presidents, Pretoria will threaten to reduce recalcitrant or 'unfriendly' African capitals to rubble. The regime could and would use its nuclear muscle to weaken boycotts, embargoes and sanctions: it could blackmail Africa and the international community into acquiescence in its apartheid policies at home and expansion of its economic stranglehold over the continent. Finally, there is nothing in Pretoria's record as a member of the international community that could leave any doubt whatsoever, that a beleaguered regime would as final desperate move actually use nuclear weapons.

But let white South Africa speak for itself:

February 1965:
Dr. Andries Visser, member of South African Atomic Energy Board, suggested, that South Africa needed to establish a nuclear arsenal not only for "prestige purposes" but also because "we should have such a bomb to prevent aggression from loud-mouthed Afro-Asiatic states ... money is no problem, the capital for such a bomb is available." (39)

August 5th, 1965
H.F. Verwoerd:
"It is the duty of South Africa to consider not only the military uses of the material but also to do all in its power to direct its uses for peaceful purposes." (40)

December 1968:
General H.J. Martin, Army Chief of Staff, said that the work on missile development being carried out in South Africa was related to the fact that South Africa was now ready to make its own nuclear weapons (41).
May 6th, 1969: Die Volksblad (editorial): "Friendly approaches are usually made towards a country with a powerful militarv fist, because such a country can be a valuable ally in war time, and in time of peace again it can be a valuable market or a seller of armament and strategic material. The resulting trade helps to build bridges of friendship, even on the diplomatic level." (42)
July 26th, 1970, Die Beeld:
"Mr. Vorster has not yet said categorically that South Africa will never make an atomic bomb. In view of this fact, people will have to look at us in a new light. South Africa now becomes altogether different proposition if you want to tackle it. This bargaining power can be used in various fields in the difficult years that lie ahead. America, for example, would have to revise its strategy towards us." (43)
April 12th, 1971:
In a radio interview Dr. Roux said, that with its own uranium enrichment method, South Africa was theoretically in a position to produce nuclear weapons. He explained that it would not have been practical, and was actually impossible for South Africa to produce nuclear weapons from plutonium.
The reasons were that much of the material and equipment needed to use plutonium militarily would have had to be imported. Such a plant would also have come under international control. Although it was the policy of South Africa to use her enriched uranium for peaceful purposes, the new method recently developed in the country made production of atomic weapons possible (12).
July 1971:
Dr. Roux of AEB: "If a country wishes to make nuclear weapons, an enrichment plant will provide the concentrated fission material if the country possesses the necessary natural uranium to process in the plant." (44).
July 12th, 1974:
The vice-chairman of the Atomic Energy Board, Dr. Louw Alberts, declared, that South Africa is able to produce atomic bombs. "Our nuclear programme is more advanced than that of India." (45)
Shortly before this statement was made, India had set off her first nuclear explosion.
That Bonn and Pretoria have something to hide in the realm of their nuclear cooperation becomes evident from the letter of apartheid ambassador Uyl to his successor-designate Sole quoted above and from Mr. Haunschild to Dr. Roux Newspapers in the Federal Republic (46, 47), the spokesman of the GFK Karlsruhe (48) as well as the responsible government official (49) have said in connection with the recent nuclear agreement between the FRG and Brazil that the jet-nozzle system was not suitable for high-degree enrichment of uranium for military purposes, since the process would take innumerable years. This information is untrue. The proposed South African plant, for example,

DOCUMENT 26

Essen, den 27. Februar 1973
Vö/Gl

Besuch von Herrn Dr. Roux

13.3.1973

Abholung von Dr. Roux zum GK West

16.30 Uhr — Ankunft der Herren Dr. Roux, Dr. Bund, Dr. Völcker, Geppert im GK West

Führung durch das GK West

18.00 Uhr — Abendessen im Haus Wohnung, Voerde, Dr. Roux, Staatssekretär Haunschild mit Gattin, Dr. Nettesheim mit Gattin, Dr. Bund mit Gattin, Dr. Schadtberg mit Gattin, Dr. Völcker mit Gattin, Geppert

Übernachtung für Herrn Dr. Roux im Kaiserhof, Essen

14.3.1973

9.45 Uhr — Eintreffen von Botschafter Sole, Hauptverwaltung

10.00 Uhr — Abfahrt ab Hauptverwaltung zum Kraftwerk Lünen
Sole, Dr. Roux, Dr. Völcker, Geppert
Besichtigung der KDV-Anlage

gegen 13.30 Uhr — Mittagessen im Hotel Kreutzkamp bei Lünen

16.00 Uhr bis ca. 18.00 Uhr — Besprechung bei Dr. Bund

19.00 Uhr — Aperitif bei Bunds

20.00 Uhr — Abendessen im Ange d'or, Kettwig
Sole, Dr. Roux, Dr. Bund, Dr. Völcker, Gepper

Übernachtung für Herrn Dr. Roux
im Kaiserhof, Essen

15.3.1973	
10.30 Uhr	Abflug mit Privatmaschine (Dr. Roux, Dr. Bund mit Gattin, Dr. Völcker mit Gattin, Geppert) Mülheim - München (Cessna 421)
gegen 12.oo Uhr	Landung in München
	Fahrt zum Hotel Sheraton, Arabellastraße (Hotel Continental und alle anderen bekannten Hotels wegen BAUMA seit Monaten vorbestellt!)
13.oo Uhr	Mittagessen im Restaurant "Die Mühle" im Hotel Sheraton
	Besprechungen über Kooperation
18.oo Uhr	Abendessen in der "Altbayern-Stube" im Hotel Sheraton
19.30 Uhr bis ca. 22.oo Uhr	Besuch im Gärtner-Theater "Der Babier von Sevilla"
	Übernachtung im Hotel Sheraton
16.3.1973	
vormittags	Aufenthalt in München
11.oo Uhr	Fahrt nach Rottach-Egern
12.oo Uhr	Mittagessen im Hotel Bachmair am See in Rottach-Egern
gegen 13.30 Uhr	Abfahrt Dr. Bund und Gattin nach München
15.oo Uhr	Abflug Dr. Bund und Gattin München - Mülheim
	Dr. Roux, Dr. Völcker und Gattin, Geppert verbringen den Abend in München (Schwabing?)
	Übernachtung Dr. Roux, Dr. Völcker und Gattin, Geppert im Hotel Sheraton
17.3.1973	
11.15 Uhr	Abflug Dr. Roux München - Frankfurt (LH 751)

Translation

Federal Ministry
of Education and Science
The State Secretary
Dr. A.I.A. Roux, Esq.
President of the
Atomic Energy Board
Private Bag 256
PRETORIA
South Africa

53 Bonn 9, July 12th, 1972
Heussallee 2 - 10
telephone 1081

Dear Dr. Roux,

During our talk at Skukuza I had promised you to have – after my return – investigated, how the secrecy of information could be safeguarded. This refers to the know-how of details of the enrichment process during the exploratory phase being learnt by collaborators of an industrial firm, before the actual decision on a cooperation is taken.

The result of the investigation is at hand. So far as it concerns the penal secrecy, the legal position is as follows:

1. Material Protection of Secrecy

The protection of the know-how in question as a German state secret within the meaning of the articles 94, 95, 97 of the penal code presupposes (cumulatively),

- *the know-how has been confided to German government agencies;*
- *there is an agreement – somehow or other – on the secret treatment between the Federal government and the government of South Africa;*
- *the know-how is in need of secrecy materially, that is, its abandonment would be gravely detrimental to the interior security of the Federal Republic;*
- *the know-how is kept secret by an official German agency or at its suggestion (factual secrecy).*

2. Preventive Technical Secrecy

In this case it is a question of the formal treatment as a secret knowledge without judging the value of the secret.

First of all, a binding assent by the government ought to be given so far to apply the procedures of secrecy being in force, or, to render the expert – having received the know-how for testing – liable to treating it according to the scheduled procedure. (This presupposes that the receiver incurs such liabilities).

He who imparts such secret material either completely or in part to someone else or renders it public thereby endangering vital public interests, makes himself liable to prosecution regardless of the material quality of the knowledge as a German state secret according to the article 353 c of the penal code. The prosecution presupposes an authorization of the Federal government.

I hope this short representation of the state of affairs and of the legal position does answer your question sufficiently.

During our talk we agreed that an arrangement on the secrecy of the process between our countries would not be opportune at present. I should like to stress, however, that private German industrial groups are completely at liberty to decide upon participation in foreign processes including upon agreements on the confidential treatment of the then obtained information. This also does apply to the disposal of non-secret knowledge conversely.

I have informed STEAG about this statement.

yours sincerely,
Haunschild

is to reach a 3 % enrichment in 16 hours (6). By means of simple repetition of the process the necessary concentration could be achieved within a few months.

FRG Strengthens Apartheid

Thirty years ago fascist rule in Germany was destroyed, not from within but by external military forces. Since then, the FRG has been a consistent supporter of colonial powers in Africa including the Pretoria regime. The Federal Republic of Germany was the largest supplier of weapons for Portugal's colonial wars in Africa. As late as the beginning of 1974, the FRG was assisting in the construction of an ammunition and bomb factory in Lisbon (50).

The FRG did not, within the framework of a "division of labour and partition of the market", adopt "the relatively carefree attitude with which the governments of countries such as France and Great Britain handle arms exports", as Secretary of State in the Federal Ministry of Defence, Wolf Mommsen, phrased it (Oct. 2, 1970). Instead she became the largest trade partner, and by far the largest supplier of credits to apartheid South Africa. 50% of all outstanding foreign loans 1440 m dollars, originate from the FRG. Furthermore, there is evidence that, contrary to all her denials, the FRG supplied military trucks before 1971 (51) and 1974 (52) as well as – in cooperation with France – Transall military planes, Milan rockets and helicopters (52). Installations for the military communications centre Silvermine near Cape Town were supplied by West German companies. The Bundeswehr (federal army) facilitated the inclusion of the centre in the unified NATO codification system (53). Two staff members of Pretorias's Embassy in Bonn participated in November 1970 in a codification training course at the Military Supplies Division (Materialamt der Bundeswehr) in St. Augustin near Bonn. Despite all evidence to the contrary, the Federal Government continues to maintain at the UN and elsewhere that there is no German – South African military co-operation.

South Africa and the Federal Republic of Germany make natural allies, so they each have their own reason for the clandestine development of nuclear weapons. In its original conception, the project and collaboration with South Africa may have been an attempt by leading German companies and nationalistic politicians to procure civil and military nuclear power independently of the USA. The Federal Republic of Germany is prohibited from producing nuclear weapons on its own territory as a result of the Brussels Agreement of 1953 adopted by the West European Union. Despite that, there are circles within the Federal Government who are very keen to lay their hands on nuclear weapons. One of the main exponents of this is the former Federal Minister of Defence and Atomic Energy, Franz Josef Strauß, who, for instance in 1959, tried, but unsuccessfully, to secure Federal German participation in the French Nuclear-weapon-project and is also the man, who in the latter part of the sixties did his utmost to prevent the signing of the Non Proliferation Treaty. He is a regular visitor to South Africa,

having visited that country in 1966, 71, 73, 75. In 1973, Dr. Roux paid two unexplained visits to Munich, the town where Strauß lives. Visits to the Munich-based firms involved in the jet-nozzle plant such as Linde, Siemens, Messerschmitt-Bölkow-Blohm were not on his itinerary.

For the construction of atomic weapons, the Pretoria regime offered the FRG valuable prospects or has created them. Although the USA, Great Britain and France were supplied with uranium for military purposes by South Africa, and although "the makers of the first atomic bomb were secretly informed by Smuts as early as 1941 of the existence of uranium in South Africa" (South African Yearbook 1974, p. 98), "none of the world powers possessing the highly sophisticated and military significant enrichment technology was willing to share it with South Africa" (Ibid. p. 34).

In order to protect its cloak of secrecy over its atomic project, the dissemination and receiving of any information on the facts and progress in reference to uranium deposits, advancement, haulage, enrichment, etc. is punishable by law with imprisonment up to 20 years and a fine up to 12 000 dollars. The present SA ambassador in Bonn, Sole, has written, that the "tactics" adopted by the SA government on the question of uranium sales for civil purposes "produced their dividends", i.e. "of avoiding commitments as far as it is possible to do so and retaining as much freedom of action as our resources and political position allow".

The South African uranium industry was created by the USA and is accessible to their computation. Only the size and contents of the uranium deposits of Rössing in Namibia are unknown and here the FRG involvement becomes evident.

The participants in the development of the Rössing mines besides the South African Industrial Development Corporation (25%) and General Mining (25%) are Total-France (10%), Rio Tinto Zinc-Britain (20 or 25%) and the Urangesellschaft - West Germany with 15 or 20% of the shares.

The FRG firms VEBA (government owned) and STEAG (government controlled, each own 33 % of the Urangesellschaft. Prospecting costs of 2.4 million dollars for the German firm in Rössing were met by the Government of the Federal Republic of Germany for period 1969 - 70. But since 1971 there have been no official payments by the Federal Government, a consequence of the protest wave against the state financing of the Cabora Bassa dam. However, in view of a statement made by State-Secretary Haunschild it would appear, that the Urangesellschaft received a very large subsidy from the government for uranium prospecting in Niger from 1972 onwards without having to account for the manner in which that money was spent (approximately another 2.4 m dollars).

It is unlikely that Urangesellschaft would participate in Rössing unless it was protected against financial loss by the Federal Government which also will have to purchase its share of the uranium quota (750 - 1000 tons from 5000 tons). The Federal Government, in an answer to a question in Federal

Parliament stated that it did not feel bound by the decision of the UN Namibia Council of September 27, 1974, which states inter alia every export of Namibian minerals without approval of the Council is illegal (57).

FRG involvement is also evident in the construction of an extraction-plant at the same time in Rössing, in which the firm Nukleare Chemie und Metallurgie (Nukem), of Wolfgang near Hanau (FRG) is participating. Nukem receives a substantial subsidy from the government. Hitherto South Africa's uranium has been converted in the United Kingdom. The new enrichment plant, according to Roux (35) will also contain its own hexafluoride conversion plant. This would give South Africa complete secrecy in all phases of nuclear activity from mining to the possible production of material for nuclear weapons. The construction of the uranium enrichment plant facilitates the establishment of a nuclear arms potential not only in South Africa but also in other non-signatory States, e.g. Brazil. On Juni 26th, 1975, an agreement was signed between the governments of the FRG and Brazil for the supply of two nuclear power-stations by private companies to Brazil at a value of 880 million dollars. The agreement commits the FRG, inter alia, to supply enriched uranium to Brazil for the operation of these power-stations. The agreement also includes the prospect of establishing a jet-nozzle uranium enrichment plant in Brazil. Since construction of a trial plant is to commence only in 1981 (54) the erection of a commercial enrichment plant would not be possible before 1985 at the earliest. Moreover, Brazil possesses only 2,480 tons of known deposits of natural uranium which can be economically utilized (47); a further 12,500 tons in the country would be worth mining only if world-market prices for the commodity doubled. It follows that Brazil, at this point, can neither feed the envisaged total of eight nuclear power-stations for the country nor pay the FRG for the installations with uranium.

The part of the Brazilian nuclear power-stations project to be supplied from abroad and to be financed through credits amounts to 800 million dollars (55). The state-owned bank "Kreditanstalt für Wiederaufbau", Frankfurt, FRG, and a West German bank consortium, however, intend to make 1000 million dollars available (56). The technical journal "Nuclear News" of July 1975 states that an amount of 1400 million dollars is envisaged. Further investigation into the Brazilian credits is necessary, for it may well be that the industry in the FRG, through this oversized credit to Brazil, are going to participate in the financing of the plant in South Africa in the form of a "Brazilian" participation in the South African scheme. On Juni 5, 1975 "Frankfurter Allgemeine Zeitung" referring to the deal with Brazil, said: "A rejection of the agreement, however, ... could have brought about negative effects on other possible co-operation schemes with other countries".

The plant erected by STEAG could produce 1 250 tons of enriched uranium per annum, while the consumption of the nuclear

power-station planned at Koeberg, South Africa, is expected to be only 100 tons per annum. Brazil could acquire enriched uranium from South Africa. Since the German-Brazil agreement does not provide for the return of the plutonium gained from the combustion of uranium in power-stations. Brazil, too, would come into possession of nuclear matter for atomic weapons. Thus the FRG is assisting in providing uncontrolled nuclear material to forces in Africa and Latin America, which are determined to maintain the status quo of oppression. Though the US Congress has criticised the supply of nuclear power-stations to Brazil, no action has been taken to stop US companies from participating. General Electric USA holds 11% of the share capital of the AEG, which is itself a 50% shareholder in the Kraftwerksunion (KWU), the company which is the main supplier for the Brazil deal.
Though the FRG is the agency being used for providing the Pretoria Regime with nuclear capacity, *the major Nato powers are undoubtedly involved for all parts, at least of the compressors delivered by MAN receive NATO code numbers from the Defence Ministries of the supplier countries.*

What is to be done?

The information provided above, for all of which undisputable documentary evidence is available, establishes beyond doubt that the FRG has been conspiring to place nuclear weapon capacity into the hands of a regime that is condemned by the entire world community and is recognised as an enemy of independent Africa. In doing so, and not by accident, the FRG is also acquiring control of nuclear material contrary to its own treaty obligations – a development which should concern all those professing support for international peace and detente.
It is not yet too late to stop the construction of this monstrous project on African soil. There is already opposition to the project in the FRG. The former development aid minister, Dr. Eppler, is a declared opponent of the project, as is Dr. Uwe Holtz (SPD), Chairman of the Committee on Economic Cooperation of the Federal Parliament, Bonn. The Young Socialists voted against it at their national congress in February 1975. The Anti-Apartheid Movement has launched a campaign against the project. Now that the full extent of the nuclear conspiracy is revealed, peace loving forces throughout the world must make their voices heard – at the UN, in Geneva, in Addis Ababa and above all in Bonn, for the Federal German Government must be called upon to account for its actions and plans.

In Pretoria, the true face of Vorster once again stands revealed. Whilst extending one hand in ostensible "friendship and peace" to free Africa, with the other hand, apartheid South Africa is surreptitiously but deliberatly building up sufficient military power as will devastate our continent.
All those who join hands with the Pretoria regime must bear the responsibility for the holocaust that must surely follow if this nuclear conspiracy is allowed to reach its aims.

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3. South African Digest, Pretoria, 23 March, 1967
4. Le Monde, France, 24.4.1975
5. Neue Zürcher Zeitung, Switzerland, 24.4.1975
6. Der Spiegel, FRG, 18/1975, 24.8. 1975
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8. Jahrbuch der Atomwirtschaft (Yearbook of Nuclear Affairs), Düsseldorf, FRG, 1974, p. 173
9. The Times, U.K., 20.8.1973
10. Nuclear Engineering Interational, July 1974
11. The Star, 12.4.1975
12. The Star, 17.4.1971
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15. B.J. Vorster – House of Assembly Debates, Pretoria, Vol. 25, col. 5, 7, 8.
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17. The Star, 27.3.71
18. Süddeutsche Zeitung, Munich, FRG
19. afrika heute (africa today), Bonn, FRG, 15.9.1970
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31. Wall Street Journal, USA, 23.10. 1970
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36. The Star, 12.4.1975
37. Der Spiegel, FRG, 28.7.1975
38. BBC, London, 23.8.1975
39. New York News, 28.2.1965
40. South African Digest, 13.8.1965
41. Sunday Express, S.A., 22.12.1968
42. Die Volksblad, S.A., 6.5.1969
43. Die Beeld, Pretoria, 26.7.1969
44. Nuclear Active, Atomic Energy Board, Pelindaba, July 1971, p. 4
45. The Times, U.K., 12.7.1974
46. Kölner Stadt-Anzeiger, FRG, 14.6.1975
47. Süddeutsche Zeitung, FRG, 29.6. 1975
48. Dr. Körting of GFK, Karlsruhe, responsible for public relations in respect to the jett-nozzle system, offered this information during an enquiry by telephone made by the Anti-Apartheid Movement in the FRG on 15.7.75. When more specific questions were asked, he corrected himself: "This is not to be quoted."
49. Dr. Gruber, Federal Ministry of Research and Technology, Bonn, during an enquiry by telephone made by the Anti-Apartheid Movement in the FRG on June 26th, 1975
50. Reply of the Federal Government, Bonn, to the enquiry in parliament by Dr. Uwe Holtz, MP/SPD, 21.2. 1974
51. Paratus, (official organ for the South African army), June 1971, p 29
52. Africa, U.K., No. 44, April 1975
55. Frankfurter Allgemeine Zeitung, 6.6.1975
56. Handelsblatt, (trade news), FRG, 3.6.1975
57. Deutscher Bundestag, 7. Wahlperiode, Drucksachen 7/3706, Fragen A94 und 95

Chronology

1956	*FRG: Foundation of the Society for Nuclear Research (GFK) in Karlsruhe*
1957	*SA: Establishment of the Atomic Energy Board (AEB) as a separate body*
1957	*SA: Dr. Roux of AEB undertakes a six-month information tour abroad*
1958	*Dr. Roux visits Degussa, Frankfurt*
1959	*De Gaulle refuses West German participation on French nuclear weapons project as asked by Franz Josef Strauss* *FRG: The Institute for Nuclear Processing Techniques (Institut für Kernverfahrenstechnik) of the GFK, Karlsruhe, commences development of the jet-nozzle system*
1960	*SA: Dr. Roux of AEB requests his heads of department to submit proposals for economic ways to enrich uranium. One of the departmental heads, Dr. Grant, proposed the new processing system.*
1961	*SA: Commencement of the development of the enrichment technique through Dr. Grant on the initiative of Dr. Roux without the knowledge of AEB officials.*
1962	*Cultural Agreement between the Federal Government and the Vorster regime providing for scientific and technical cooperation.*
1963	*H.J. Abs, spokesman of the Board of directors of Deutsche Bank AG visits South Africa* *Dr. Roux visits GFK, Karlsruhe*
1965 August	*SA: When inaugurating South Africa's first nuclear reactor, the Pretoria's Prime Minister Verwoerd said: "South Africa is one of the most important uranium producing countries in the world. It is the duty of South Africa not only to consider the military use of the material but also to do all in its power to direct its use to peaceful purposes".*
1965	*SA: Nuclear reactor "Safari I" in Pelindaba starts operating (see item above), constructed by the companies Krupp (FRG), BBC (FRG), Allis-Chalmers (USA).*

1966	*FRG: the politician Franz-Josef Strauss visits South Africa.*
1967	*Apartheid Minister of Defence P.J. Botha visits the*
April 17	*Federal Minister of Defence Schröder in Bonn* *SA: Coming into force of the Atomic Energy Act, Act No. 90/1967, incorporating, inter alia, a long list of prohibited information, e. g.* *" In regard to reserves of ores containing any source material or the annual output of such material or ores by any peron... or the price paid to any person in respect of such materials or ores ... or relating to prospecting for treatment or ores..."*
1968	*SA: A three-men committee under the chairmanship of Dr. van Eck of the Industrial Development Corporation of South Africa studies possibilities for the realization of uranium enrichment and recommends the financing of a pilot plant.*
1969	*SA/FRG: Pretoria appoints D.B. Sole as new ambassador to the FRG. Sole served as the regime's representative on the S.A. Atomic Energy Board, held the position of chairman of the International Atomic Energy Organization in Vienna in 1959 and 1960 and continued to be a member of the Organization's Council of Governors until the end of 1972.* *SA/FRG: Dr. H.J. du T. van der Linde, Dr. W.E. Stumpf and R.J. Schmitt of AEB commence special training at the Nuclear Research Centre (KFZ/GFK) in Karlsruhe.*
August 21	*FRG: Federal elections in the FRG: The Christian Democratic Party (CDU) /Christian Social Party (CSU in Bavaria only) suffers a defeat and the Social Democratic Party (SPD) in coalition with the Free Democratic Party (FDP) comes into power*
November 10/11	*SA/FRG: Dr. W.L. Grant, director general of AEB and head of the enrichment project, who worked on the jet-nozzle method, visits the Nuclear Research Centre (KFZ/GFK) in Karlsruhe.*
1970	*Federal Minister of Foreign Affairs and Vice-Chancellor Walter Scheel visits South Africa.*
End of January	*FRG: The then Federal Minister of Education and Science, Prof. Leussink, discusses with Sole the possibility of South Africa's participation in the gas centrifuge enrichment project under negotiation between the FRG, Great Britain and the Netherlands.*
March	*FRG: Agreement concluded between the Society for*

	Nuclear Research (GFK), Karlsruhe, and the fuel-energy concern STEAG, Essen, for the development of a jet-nozzle demonstration plant.
July	*SA/FRG: Mr. P.I. Wilmot of AEB commences special training at the Nuclear Research Centre (KFZ/GFK) in Karlsruhe.*
	Installation of a prototype of a small separation stage in Karlsruhe.
July 7	*SA: Vorster announces to Parliament in Cape Town the successful 'discovery' "by South African scientists of a new process for the enrichment of uranium and the techniques required for implementation".*
July 20	*SA: Pretoria's Minister of Mines, Dr. de Wet, states at a press conference in Cape Town: "Almost as remarkable as the new process developed by the Atomic Energy Board is the fact that the Board succeeded in keeping the secret with such success that no information whatever in regard to it managed to leak out". And Dr. de Wet's concluding words of warning were reported to be: "It is perhaps fitting that, in the interests of South Africa and especially the communications media, attention is drawn to the strict stipulations of the Atomic Energy Act regarding the question of secrecy".*
July	*SA: Foundation of the state-owned Uranium Enrichment Corporation (UCOR, with a capital of 50 million Rand.*
November 23	*Report in the Wall Street Journal, USA, that in addition to other scientists from the FRG Prof. E.W. Becker of the GFK Karlsruhe is currently working in South Africa.*
1971	*Ex-Minister of Defence and Foreign Affairs, Dr. G. Schröder, and Secretary of State in the Ministry of Economic Affairs, Philipp Rosenthal, in South Africa.*
April 1	*SA: Commencement of operations of UCOR.*
April/May	*Strauss visits South Africa*
April 12	*SA: Dr. Roux states that the new uranium enrichment process puts South Africa in a position to make her own nuclear weapons.*
	SA: Coming into force of the Atomic Energy Amendment Act, No. 73/1971, to protect the new uranium enrichment process.
July	*SA/FRG: Mr. B.C. Winkler of AEB visits the Nuclear Research Centre (KFZ/GFK) in Karlsruhe.*
August 13	*SA: Vorster states that South Africa now possesses one of the three methods for uranium enrichment.*
December 13	*FRG: ambassador Sole enquires from Dr. Lindacker*

	of the Technical Supervision Association (TÜV, of the state of Rheinland about possibilities of safety control for nuclear installations supplied by German firms.
December 29	*Haunschild writes a letter to Roux concerning visit in Pelindaba for discussion on nuclear co-operation.*
End of 1971	*H.J. Abs (Deutsche Bank) and Casimir Prinz Wittgengenstein (Metallgesellschaft) visit South Africa.*
1972	*SA/FRG: Secret visit to Bonn by Vorster's personal advisor, Mr. P.S. Rautenbach, and Minister of Economy, Mr. S.L. Muller.*
End of March	*Ex-Minister Schröder in South Africa for two weeks*
April 18/19	*FRG/SA: Secretary of State, Mr. Haunschild, Dr. D. Frenzel, Dr. M. Nettesheimer, Dr. R. Gerold, all officials in the Federal Ministry of Education and Science, Bonn, visit Pelindaba in South Africa.*
June	*South African Minister of Finance Diederich in Frankfurt, Hamburg, Bonn*
July 12	*Confidential expertise sent by Haunschild to Roux on the uranium enrichment process*
August/November	*F.H. Ulrich (Deutsche Bank) and H. Hänsgen (Dresdner Bank) visit South Africa.*
1973	*SA/FRG: Secret visit to the FRG by Pretoria's Minister of Foreign Affairs, Dr. Muller, Minister of Finance, Dr. Diederichs, Secretary of State of the Ministry of Finance, Mr. G.W. Brown and Minister of Economic Affairs, Mr. Horwood. Ex-Minister of Science, Dr. G. Stoltenberg, Ex-Minister of Defence and Vice-President of the "Bundestag", Kai-Uwe von Hassel, Minister of Economy of the state of Nordrhein-Westfalen, Dr. Riemer, and the president of RWE, Prof. Mandel, visit Pelindaba.*
January 11 – 13	*FRG/SA: Dr. Bund, Chairman of the STEAG-company, pays another visit to Pelindaba, S.A., for discussions with Dr. Roux.*
March 12	*SA/FRG: Dr. Roux of AEB visits Secretary of State, Mr. Haunschild, in Bonn.*
March 13 – 15	*Dr. Roux of AEB visits STEAG, Essen.*
March 13 – 14	*Mr. Krüger of AEB visits the Nuclear Research Centre in Karlsruhe.*
March 16	*Dr. Roux of AEB in Munich*
March 29	*Mr. E. Maunders of AEB visits the Nuclear Research Centre in Karlsruhe.*
April/May	*FRG/SA: Prof. Boettcher of the Nuclear Research Station in Jülich, FRG, on behalf of Ambassador Sole invites scientists in Jülich and in Karlsruhe to apply for assignments at Pelindaba research centre.*

May 4 – 14	*Dr. Bund, Dr. Schulte, Dr. Völker and Geppert (all of Steag AG) visit Pelindaba.*
May 24	*SA: The Minister of Mines, Dr. P.J. Koornhof, informs parliament that as a next stage to the pilot enrichment plant currently underway funds for a full-scale prototype plant were being made available. The full-scale plant will be able to process about 12 000 metric tons of uranium annually and will cost approximately 700 m dollars. The power consumption will be about 2000 megawatts, which is about 23% of the total present (1973) power generating capacity of ESCOM. The production of enriched uranium in South Africa would be approximately 30% cheaper than any other process of similar volume in the world.*
May 27 – June 3	*Ex-Minister of Finance, Alex Möller, in S.A.*
June 13	*FRG/SA: Cable by STEAG, Essen, to Dr. Roux, STEAG informs Roux of its Board of Management's approval of the memorandum of understanding and of Haunschilds co-operation.*
July 11	*SA/FRG: Dr. G.B. Lovell of AEB visits the Nuclear Research Centre (KFZ/GFK), Karlsruhe.*
August	*Strauss visits South Africa*
August 15	*Drs Bund and Völker at Pelindaba sign an agreement on co-operation between STEAG and UCOR.*
August 20	*Pretoria requests security clearance from the FRG Ministry of Economic Affairs for admission to Pelindaba of seven STEAG technicians.*
August 23	*Dr. Stoltenberg visits Pelindaba*
September 11/12	*SA/FRG: Dr. Roux visits Dr. Bund in Essen*
September 13/14	*Dr. Roux in Munich*
	SA/FRG: Newby Fraser, director of external relations of AEB, visits the Federal Ministry of Research and technology in Bonn.
September 27	*FRG: Inter-ministerial meeting of Secretaries of State of the Federal Ministries of Education and Sciences, Economic Affairs, Foreign Office of the Chancellor, giving unanimous support to the co-operation of STEAG and UCOR and the use of the technology of GFK in Karlsruhe.*
October 17	*The Federal Cabinet discusses the granting of a sublicence to S.A. for the enrichment process. With the exception of Eppler and Maihofer all members of the government supporte the proposal. The decision is postponed until October 25th.*
October 18	*Steag withdraws its application*
October 31 and November 8 – 12	*South African Minister of Finance Dr. Diederich confers in Frankfurt with Dr. P. Lichtenberg (Commerzbank), I. Ponto (Dresdner Bank), H. Häusgen*

	(Dresdner Bank), C. Prinz Wittgenstein (Metallgesellschaft), P. Ungerer (Degussa), W. Guth (Deutsche Bank), K. Klasen (Bundesbank), H. J. Abs (Deutsche Bank).
late 73	*FRG/SA: Four scientists of the Nuclear Research Centre (KFZ/GFK) Karlsruhe are reported to be working at Pelindaba/Valindaba, S.A.*
November 16	*SA/FRG: Mr. B.G.L. Meyer of the AEB visits the Nuclear Research Centre (KFZ/GFK), Karlsruhe.*
November 5	*SA/FRG: Dr. Joubert of the AEB visits the Nuclear Research Centre in Karlsruhe.*
December	*K.U. v. Hassel visits South Africa*
1974	*Minister of Finance Dr. Diederichs, Secretary of State of Economy F. Steyn in West Germany.* *Installation of a big seperative stage in Karlsruhe* *Photos showing parts of the demonstration plant in Pelindaba indicate that a jet-nozzle plant is to be built (South African Panorama, January 1974).*
January 4	*FRG: Advertisement in "Die Welt", FRG: The S.A. Atomic Energy Board invites applications from nuclear scientists.* *FRG: The same advertisement appears in "Atomwirtschaft" (nuclear affairs), Düsseldorf.*
January 26	*S.A.: The pilot uranium enrichment plant is reported to have made progress.*
February 9	*FRG: Advertisement of 4. Jan. repeated in "Die Welt".*
February 21 – March 8	*H. Geppert (Steag) visits Pelindaba*
March 1-8	*FRG/SA: Prof. E.W. Becker of the GFK, Karlsruhe, who is the inventor of the jet-nozzle system, visits Pelindaba together with Dr. Schulte and Dr. Voelcker of STEAG.*
March	*FRG: ambassador Sole meets the politician Franz Josef Strauss.* *Dr. K. Klasen (Bundesbank) visits South Africa*
March 19	*Agreement STEAG-UCOR*
March 29	*Dr. von Kienlin, General Manager of the Urangesellschaft in Rössing*
early April	*FRG: Dr. Roux of AEB, SA, visits the annual Industrial Fair in Hannover*
April 9	*FRG: The STEAG company announces conclusion of an agreement with UCOR, SA, to undertake a joint comparative feasibility study of the South African enrichment system and the jet-nozzle system.*
May 5-13	*Dr. Bund, Dr. Schulte, Dr. Völcker visit South Africa*
July	*USA: The scientific head of the Nuclear Energy*

	Division of General Electric, Mr. K.P. Cohen, states that the "secret" uranium enrichment method of South African, on the basis of which the South African enrichment plant is to be constructed, represents in fact an adapted version of the jet-nozzle method developed by Prof. E.W. Becker of Karlsruhe, FRG.
July 12	*SA: The vice-chairman of AEB, Louw Alberts, declares that South Africa is able to produce the atomic bomb.*
August 28	*FRG/SA: Dr. Gerhard Stoltenberg (CDU), Prime Minister of Schleswig-Holstein and former Federal Minister of Science, visits Pelindaba, SA.*
September 11	*SA/FRG: The state-owned energy concern ESCOM of South Africa places an order with the MAN company, Nürnberg, FRG, for compressors worth 184 million dollars required for acceleration work at the enrichment plant. The compressors will be registered under the unified NATO codification system.*
October 17	*The Lieutenant-General G.Rall, former Inspector of the West German Luftwaffe, and German Military Representative to the Military Council of NATO in Brussels, inspects the installations at Pelindaba and discusses with Dr. Roux the progress of the project.* *Rall is guest of Pretoria's Department of Defence. He travels secretly, under a false name and with the approval of the West German Federal Minister of Defence, Georg Leber.*
December 3-5	*SA/FRG: Dr. Meyer of AEB visits the Nuclear Research Centre (KFZ/GFK), Karlsruhe.*
December 9	*FRG: Dr. J. Rembser of the Federal Ministry of Research and Technology, Bonn, visits Ambassador Sole to discuss the STEAG project.*
1975	*SA/FRG: The South African Minister of Finance, Dr. Diederichs, visits the FRG.*
February 24-28	*SA/FRG: Dr. Grant and Dr. Roux of AEB visit STEAG, Essen.*
February 25	*SA/FRG: Dr. Roux of AEB visits the Secretary of State in the Federal Ministry of Economic Affairs, Dr. C.D. Rohwedder.*
March 5	*FRG: Ambassador Sole and Secretary of State Haunschild discuss the project.*
March 14	*FRG: In response to a question by Mr. Müller, MP (SPD) to the Federal Government on STEAG's involvement in South Africa, the Federal Government states that the "two processes have not yet reached the stage to go in for production".*

March 25-28	*Dr. Roux visits STEAG, Essen.*
April 7	*SA: Dr. Grant of AEB refers to the "STEAG feasibility study" as being "very successful". Construction of the prototype enrichment plant would begin in 1976. ("Financial Gazette", SA, April 4, 1975)*
April 7	*SA: Vorster announces that the pilot uranium enrichment plant near Pelindaba has been successfully brought into operation. (Allgemeine Zeitung, Windhoek, April 8, 1975)*
April 15	*FRG: The Federal Minister of Economic Affairs, Dr. H. Friederichs, meets Pretoria's Minister of Mines, Dr. Koornhof, at the Industrial Fair in Hannover and discusses with him matters of co-operation in regard to nuclear affairs. (Süddeutsche Zeitung, FRG, April 21/22, 1975)*
April 17-27	*FRG/SA: Secretary of State of the Federal Ministry of Economic Affairs, Rohwedder, visits South Africa. On the 17. and 18. he meets Dr. de Villiers, vice-president of AEB and Dr. Loubser, vice-chairman of UCOR. On the 22, visit to Pelindaba. On the 24. discussions with Minister Koornhof in Pretoria.*
April 17	*SA/FRG: The Pretoria's Minister of Mines, Koornhof, meets Secretary of State of the Federal Ministry of Research and Technology in Bonn, and abtains the repeated assurance that the Federal Government supports STEAG's involvement in South Africa.*
April 17	*FRG: The Federal Government announced that South Africa will use its own method for the enrichment of uranium and not the jet-nozzle system.*
April 18	*SA/FRG: Minister Koornhof meets Dr. Bund of the Ruhrkohle/STEAG companies at Hugenpoet Castle near Kettwig/Ruhrarea, where further steps of cooperation are being discussed. As a public relations exercise, the Ruhrkohle Company intends to arrange a visit of 20 German journalists to South Africa in the month of September 1975.*
April 22	*SA: At the European Nuclear Conference in Paris, Dr. Roux and Dr. Grant of the AEB disclose for the first time some details about the enrichment method to be used in South Africa.*
April 24	*During the debate on energy of the Federal Parliament, the economics expert of the Free Democratic faction in Parliament, Count Lambsdorff, who visited S.A. in February 1975 at the expense of the South African*

regime, recommended to parliament the participation of the FRG in the uranium enrichment project in South Africa. (Shorthand report on the Federal Parliament, 7th period of legislation, 167th session).

May 2 — *FRG: The Scientific Counsellor of Pretoria's Bonn Embassy, Dr. Hellwig, visits the Institute of Space Technology and Aerodynamics in Göttingen, FRG, and discusses with the expert for electro-forming, Mr. Rammzweig, technical aspects of the jet-nozzle system.*

May 15 — *FRG: The newspaper "Handelsblatt" (trade news) reports that the study on the South African uranium enrichment method brought positive results.*

May 25 — *Strauss visits S.A.*

June 22 — *Vorster visits Schmidt*
Thirteen advertisements in "Sunday Times", Johannesburg, requiring experts for Rössing, Pelindaba, Valindaba.

July 31 — *FRG/SA: The politician Franz-Josef Strauss meets the Pretoria's Minister of Defence, Mr. Botha, in Pretoria.*

August 1 — *SA/FRG: Dr. Loubser, UCOR, visits Messrs. Internationale Nickel Deutschland, Düsseldorf, to negotiate an agreement on electro-forming of the jet-nozzle equipment.*

August 2-9 — *FRG/SA: Franz-Josef Strauss meets Minister Koornhof at a farm owned by the Pretoria Regime.*

August 29 — *Prof. Rautenbach and Dr. Kritzinger from AEB visit Company Leybold-Heräus, Hanau, for the supply of parts for the STEAG-UCOR-plant.*

September 3-24 — *Foreign Minister Dr. H. Muller in the FRG*

September 11 — *Dinner for Muller attended by Haun[illegible]ild, Schröder, General Lemm (Head of the Heer[illegible]), Lichtenberg (Chairman of Commerzbank), H[illegible] (Chairman of Bayer AG), Rohwedder.*

January 27-31 — *Völcker, Geppert visit Pelinda*

May 25 — *Strauss visits South Africa*

June 25 — *Federal Chancellor Schmidt receives Vorster in the Federal Chancellery and confers with him for two hours.*

List of Names and Abbreviations

AA	*Auswärtiges Amt (Federal Ministry of Foreign Affairs, Bonn)*
AEB	*Atomic Energy Board of South Africa*
Alberts, L. Dr.	*Vice-President of AEB, SA*
Becker, E. Prof.	*Director of the Institute of Nuclear Processing Techniques (Institut für Kernverfahrenstechnik), of the Nuclear Research Centre (Kernforschungszentrum), Karlsruhe, i.e. sub-units of the Society for Nuclear Research (Gesellschaft für Kernforschung – GFK) Karlsruhe, FRG.*
BMBW	*The former Bundesministerium für Bildung und Wissenschaft (Federal Ministry of Education and Science), Bonn, with the Ministers Lenz, Stoltenberg, Leussink since it came into being. The portfolio of the ministry comprised also the responsibilities of the formerly existing Federal Ministry of Nuclear Affairs (minister: Franz Josef Strauss). In 1973, the complex of Research and Technology was removed from the portfolio and a separate Ministry established.*
BMFT	*Bundesministerium für Forschung und Technologie (Federal Ministry of Research and Technology) Bonn, created in 1973.*
BMWi	*Bundesministerium für Wirtschaft (Federal Ministry of Economic Affairs).*
BMZ	*Bundesministerium für wirtschaftliche Zusammenarbeit (Federal Ministry of Economic Cooperation)*
Bund, K.H. Dr.	*Chairman of the Executive Committee (Vorstand) of the Ruhkohle AG, the parant company of STEAG; Chairman of the Board of Directors (Aufsichtsrat) of the STEAG company Essen, FRG, and until 1973 also Chairman of STEAG's Executive Committee (Vorstand). 1953 – 1966 Director of AEG*
ESCOM	*Electricity Supply Commission, the state-owned energy company in S.A.*
Geppert, Hugo	*Chief technician of the STEAG company with responsibility for the STEAG-UCOR project*
GfK	*Gesellschaft für Kernforschung (Society for Nuclear Research), Karlsruhe, FRG. 90% of the Society's shares are held by the Federal Government, 10% by the Government of the State of Baden-Württemberg (Stuttgart). A sub-unit of the GfK is the Nuclear Research Centre (KFZ) with its Institute for Nuclear Processing Techniques.*

Grant, W. L. Dr.	*Director-general of UCOR and deputy director of AEB, South Africa.*
Haunschild, H.-H.	*Secretary of State of the Federal Ministry of Research and Technology*
IFK	*Institut für Kernverfahrenstechnik (Institute of Nuclear Processing Techniques), a sub-unit of KFZ/GFK, Karlsruhe, FRG.*
KFZ	*Kernforschungszentrum (Nuclear Research Centre), a sub-unit of GFK Karlsruhe, FRG*
Koornhof, P.G.J. Dr.	*Pretoria's Minister of Mines, Immigration, Sports and Recreation. The portfolio includes the nuclear field.*
KWU	*Kraftwerksunion AG, Frankfurt, FRG, a company founded for the construction of power-generating stations by Siemens and AEG-Telefunken, both FRG, which each hold 30% of the shares.*
Lubser, R.S. Dr.	*Vice-President of UCOR, S.A.*
Newby Fraser, A.	*Director of External Relations, AEB*
Pelindaba	*Nuclear Research Centre in South Africa*
Rohwedder, C.D.Dr	*Secretary of State of the Federal Ministry of Economic Affairs, Bonn*
Roux, C.D. Dr.	*President of AEB and UCOR.*
Ruhrkohle AG	*Coal mining concern which is indirectly owned by the Federal Government at a percentage of 48% and which operates 80% of the coal mining in the FRG. The state-owned companies VEBA and Salzgitter (together) hold 40 % of the shares in Ruhrkohle AG. The subsidies received by Ruhrkohle AG from the Federal Government between 1971 – 75 amount to 1500 million dollars. Ruhrkohle AG is the parant company of STEAG.*
Safari 1 and 2	*Nuclear research reactors at Pelindaba, SA, in operation since 1965 and 1968 respectively. The reactors use enriched uranium supplied by the USA.*
Schulte, H. Dr.	*Chairman of the Executive Committee (Vorstand), of STEAG, Essen, since 1973 1953-57 at Gelsenkirchner Bergwerks AG, 1968 at Klöckner GmbH, 1969 at Gelsenberg AG*

Sole, D. B.	*Pretoria's ambassador in the Federal Republic of Germany since 1969. He served as the regime's representative on the Atomic Energy Board (AEB) of South Africa, held the position of chairman of the International Atomic Energy Organization in Vienna in 1959 and 1960 and continued to be a member of the Organization's Council of Governors until the end of 1972.*
STEAG	*Steinkohlen-Elektrizitäts-AG, Essen, FRG, a subsidiary of the Ruhrkohle AG (see diagram). A fuel-energy concern with a staff of 5 000. Business in 1973 amounted to 500 m dollars. In the sub-unit "Nuclear Energy" there are 35 staff, in the sub-unit "Construction and Implementation" about 30 staff, who work on the STEAG-UCOR project. STEAG holds 33 1/3 % in the company "Urangesellschaft", Frankfurt.*
Strauss, F. J.	*Chairman of the Christlich-Soziale Union – CSU (Christian Social Union), a political party that exists only in the state of Bavaria, FRG, and is a sister party to the Christlich-Demokratische Union (CDU). During the period of the CDU/CSU-government and the ensuing CDU/CSU, SPD coalition government in FRG until 1969, Mr. Strauss held the following offices:* *1953-1956 Federal Minister without portfolio (special responsibilities);* *1955-1956 Federal Minister of Nuclear Affairs ;* *1956-1962 Federal Minister of Defence ;* *1966-1969 Federal Minister of Finance*
UCOR	*Uranium Enrichment Corporation, Valindaba, SA, founded in 1971 with special responsibility for the enrichment of uranium.*
Verwoerd, H. F	*Prime Minister of the Pretoria Regime until 1968.*
Voelcker, H. Dr.	*Director of STEAG, Essen, FRG. Head of the department of Nuclear Energy.*
Vorster, J. B.	*Prime Minister of the Pretoria Regime since 1968.*
de Wet	*Pretoria's Minister of Mines until 1972. The portfolio includes nuclear affairs.*

List of Documents

1. Letter from Fleet Admiral Rolf Steinhaus to Brig. Hamman.
2. Instructions and Guidelines for compliance by members of the SADF visiting Germany to attend courses or on other duty visits.
3. Letter from Chief of SADF announcing visit to Germany of Commander Jooste and team from Armaments Board regarding Project Advocaat.
4. Letter from Federal Ministry of Defence granting access to its computer facilities to a team of South African experts.
5.-9. The Engelter File: Documents concerning secret visits of Dr. Engelter on behalf of South African Navy.
10. Letter from Federal Ministry of Defence providing advice on how to deal with static on helicopters.
11. Letter from M. E. Beyers requesting access to state financed West German research institutes.
12.-14. Extracts from Diary of South African Military Attache.
15. Letter announcing visit to the Federal Republic of team from South African Armaments Board.
16. Secret telegram from Ambassador Sole confirming use of embassy cypher for correspondence between FRG and South African Armaments Board.
17. Letter from South African National Institute of Defence Research confirming provision of training facilities by Siemens for South African missile range at St. Lucia.
18. Letter from STEAG to Dr. Roux, October 2nd, 1973, regarding sublicencing of jet nozzle process to South Africa.
19. Memorandum to Dr. Bund explaining failure to reach agreement on financial participation by STEAG in uranium enrichment plant. 7th May, 1976.
20. Letter STEAG to UCOR, 12. 3. 1976.
21. Internal STEAG Memorandum on disguising of equipment for South Africa, 25. 11. 75.
22. Letter from South African Ambassador to Pretoria, 2. 12. 68.
23. Letter confirming secondment of South African scientists to Karlsruhe, 13. 2. 70.
24. Telegram Dr. Voelcker to Dr. Roux, 6. 6. 73.
25. Confidential letter from State Secretary Haunschild to Dr. Roux, 12. 7. 72.
26. Itinery for visit of Dr. Roux in FRG, 27. 2. 73.